



**Winston H. Hickox**  
*Secretary for  
Environmental  
Protection*

# State Water Resources Control Board

---

## Division of Water Quality

1001I Street • Sacramento, California 95814 • (916) 341-5560  
Mailing Address: P.O. Box 944213 • Sacramento, California • 94244-2130  
FAX (916) 341-5550 • Internet Address: <http://www.swrcb.ca.gov>



**Gray Davis**  
*Governor*

July 5, 2001

Members and Alternates:

### MEETING OF THE AB 982 PUBLIC ADVISORY GROUP

The AB 982 Public Advisory Group (PAG) will meet on July 16 and 17, 2001 at the Clarion Hotel in Sacramento, California.

Please find enclosed the meeting agenda and the documents to support many of the agenda items. If you are planning to have handouts, please bring at least 50 copies for the PAG members and audience.

If you have any questions regarding the PAG or the meeting, please call me at (916) 341-5560. You may also call Syed Ali at (916) 341-5555.

Sincerely,

Craig J. Wilson, Chief  
Water Quality Monitoring Unit  
Division of Water Quality

Enclosures

cc: Interested Parties

# AB 982 Public Advisory Group

Monday, July 16, 2001, 1 p.m. to 5 p.m.

Clarion Hotel  
Brannan Room  
700 Sixteenth Street  
Sacramento, California

## A G E N D A

---

1. *Convene Meeting – Co-Chairs* 1:00 p.m.
  
2. *March 26, 2001 Meeting Summary* 1:05 p.m.—1:10 p.m.  
Action Item: Consider approval of Meeting Summary  
(Attached)
  
3. *TMDLs in California: The Trash TMDL* 1:10 p.m.—2:30 p.m.
  - Los Angeles RWQCB Staff Presentation
  - Dialogue
  
4. *Break* 2:30 p.m.—2:45 p.m.
  
5. *TMDLs in California: The Mercury TMDL* 2:45 p.m.—5:00 p.m.
  - San Francisco Bay RWQCB Staff Presentation
  - Dialogue
  
6. *Adjourn until 8:30 a.m. on July 17, 2001* 5:00 p.m.

# AB 982 Public Advisory Group

Tuesday, July 17, 2001, 8:30 a.m. to 4:30 p.m.

Clarion Hotel  
Brannan Room  
700 Sixteenth Street  
Sacramento, California

## A G E N D A

---

- |  |                        |
|--|------------------------|
| 7. <i>Reconvene Meeting – Co-Chairs</i>  | 8:30 a.m.              |
| 8. <i>National Academy of Sciences Report: Assessing the TMDL Approach to Water Quality Management (Executive Summary attached)</i> <ul style="list-style-type: none"><li>• Dialogue</li></ul>   | 8:30 a.m.—9:30 a.m.    |
| 9. <i>Goals, Objectives, and Evaluation Criteria: Assessing progress in State’s efforts to implement CWA Section 303(d) (Attached)</i> <ul style="list-style-type: none"><li>• Dialogue</li><li>• Comments and recommendations</li></ul> | 9:30 a.m. – 11:00 p.m. |
| 10. <i>Break</i>   | 11:00 a.m.—11:15 a.m.  |
| 11. <i>Structure of the TMDL Program (Attached)</i> <ul style="list-style-type: none"><li>• Dialogue</li><li>• Recommendations</li></ul>   | 11:15 a.m.—12:00 p.m.  |
| 12. <i>Lunch Break</i>   | 12:00 p.m.—1:15 p.m.   |
| 13. <i>Measures being taken to expedite the TMDL process (Attached)</i> <ul style="list-style-type: none"><li>• Dialogue</li><li>• Recommendations</li></ul>   | 1:15 p.m.—2:00 p.m.    |

- 14. Update: Development of the 2002 Section 303(d) list and development of Listing/Delisting Policy* 2:00 p.m.—3:30 p.m.
- Dialogue
  - Recommendations
- 15. Break* 3:30 p.m.—3:45 p.m.
- 16. Surface Water Ambient Monitoring Program Update* 3:45 p.m.—4:15 p.m.
- Dialogue
  - Recommendations
- 17. Wrap-up and Assignments (if needed)* 4:15 p.m.—4:30 p.m.
- 18. Adjourn* 4:30 p.m.

## Agenda Item 2

March 26, 2001 Meeting Summary

## **AB 982 Public Advisory Group**

Cal-EPA Building  
1001 I Street, Coastal Valley Hearing Room  
Sacramento, California

### *Meeting Summary*

March 26, 2001

**Convene Meeting:** Co-Chairs Craig Johns and David Beckman declared a quorum and convened the meeting at 9:50 a.m.

**Summary of October 27, 2000 meeting:** The summary was approved by consensus.

**Review of the State Water Resources Control Board's Total Maximum Daily Load (TMDL) Structure and Effectiveness Report:** The Co-Chairs opened the discussion by making the following points:

- The purpose of this discussion is to inform the development of the final Public Advisory Group (PAG) report on the structure and effectiveness of the State Water Resources Control Board's (SWRCB's) TMDL program.
- In the SWRCB report there was no discussion about the flow of money, and what the products are, i.e., what the money is being spent on.
- The PAG's recommendations did not appear to be taken seriously.
- The report is not aggressive enough.
- It's time to really concentrate on finishing the PAG report.
- The SWRCB report appears more favorable to the regulated community's interests than to the environmental community's interests.
- We need a vision that can take into account funding vagaries.

Other PAG members made comments:

- The SWRCB report does make a commitment to stakeholder processes, something PAG had recommended.
- PAG's efforts seem marginalized: there was no time for PAG to review the report after it left the Governor's office and before it went to the Legislature – something PAG had been told by the SWRCB would happen.
- It would be very helpful if the SWRCB had vision/goals for the TMDL program, complete with performance objectives, against which progress could be measured.

SWRCB staff were invited to comment:

- Staff worked in parallel with PAG on the report.

- The strategy was to lay out the structure, look at available funding, try to respond to PAG's consensus items, and create a foundation for future annual reports. Each subsequent report will have increasingly more detail.
- There was no attempt to undermine PAG's efforts or consensus items.

After more discussion it was decided that PAG needs to concentrate on finalizing its report.

**Finalizing the PAG TMDL report:** There was discussion about how to address the belief that the SWRCB report did not adequately address PAG's consensus items. Finally it was concluded that the PAG report would not be amended – instead concerns would be addressed in a transmittal letter. Two representatives from each community (environmental and regulated) caucused and presented two concepts they felt should be in the transmittal letter:

1. There needs to be additional articulation of the “structure” part of the SWRCB's structure and effectiveness report.
2. PAG should request that the Budget Committee ask the SWRCB for a specific description of deliverables for the next fiscal year.

These points were accepted by consensus.

The final PAG report and the transmittal letter should go out by April 2.

**PAG work plan:** There was discussion about the role of PAG in the next several months leading up to the second SWRCB structure and effectiveness report to the Legislature in the Fall. Many items that PAG could pursue were mentioned, but finally it was decided that PAG's efforts should focus on implementation of existing recommendations and plans inherent in the SWRCB's monitoring report, its structure and effectiveness report, and PAG's report. Other points made included:

- The PAG could hear back from staff on their progress in implementing the PAG recommendations.
- A master list of priorities from the three reports could be developed that PAG could monitor.
- Have a dialogue with Regional Board staff, since many of them know of PAG but have never met PAG.

The following decisions were reached:

- Craig J. Wilson will develop a draft work plan, submit to all PAG members for comment, then refer any revisions to the Co-Chairs for finalizing.
- PAG will meet quarterly, which means there will be two more meetings before the SWRCB's reports are due to the Legislature. The meetings will be in Sacramento, and could be two day meetings depending upon the agendas. Craig will propose a date for the next meeting shortly.

**Consensus legislation – SB 710:** Nora Lynn from Senator Dede Alpert’s office reviewed the amendments to SB 710 with PAG. Following discussion PAG recommended that:

1. In section 13191.3, the term “guidance” should be changed to “guidelines.”
2. Somewhere in the language of the bill, it should be stated that the SWRCB will act in consultation with PAG, and shall acknowledge any PAG consensus points.

**Comments by Chair of the SWRCB, Art Baggett:** Mr. Baggett thanked the PAG for their hard work, and encouraged them to keep working on the issues.

**Additional topics:**

- The SWRCB’s Monitoring Report has also been sent to the Legislature.
- Regarding the PAG’s monitoring report, some new developments have occurred and had several comments on the SWRCB report suggesting the possibility that PAG might want to rewrite or add to its response to the SWRCB’s monitoring report.
- The PAG’s monitoring subcommittee will write a draft response letter, email it to PAG members for review, and finalize it in the next two to three weeks.

**Public Comment:** Members of the public were asked to make any comments. None chose to do so.

**Adjournment:** The Co-Chairs adjourned the meeting at 3:25 p.m.

## Agenda Item 8

### Executive Summary

National Academy of Sciences Report:  
Assessing the TMDL Approach to  
Water Quality Management

# ASSESSING THE TMDL APPROACH TO WATER QUALITY MANAGEMENT

Committee to Assess the Scientific Basis of the Total Maximum  
Daily Load Approach to Water Pollution Reduction

Water Science and Technology Board  
Division on Earth and Life Studies

National Research Council

National Academy Press  
Washington, D.C.  
2001

## Executive Summary

Over the last 30 years, water quality management in the United States has been driven by the control of point sources of pollution and the use of effluent-based water quality standards. Under this paradigm, the quality of the nation's lakes, rivers, reservoirs, groundwater, and coastal waters has generally improved as wastewater treatment plants and industrial dischargers (point sources) have responded to regulations promulgated under authority of the 1972 Clean Water Act. These regulations have required dischargers to comply with effluent-based standards for criteria pollutants, as specified in National Pollutant Discharge Elimination System (NPDES) permits issued by the states and approved by the U.S. Environmental Protection Agency (EPA). Although successful, the NPDES program has not achieved the nation's water quality goals of "fishable and swimmable" waters largely because discharges from other unregulated nonpoint sources of pollution have not been as successfully controlled. Today, pollutants such as nutrients and sediment, which are often associated with nonpoint sources and were not considered criteria pollutants in the Clean Water Act, are jeopardizing water quality, as are habitat destruction, changes in flow regimes, and introduction of exotic species. This array of challenges has shifted the focus of water quality management from effluent-based to ambient-based water quality standards.

This is the context in which EPA is obligated to implement the Total Maximum Daily Load (TMDL) program, the objective of which is attainment of ambient water quality standards through the control of both point and nonpoint sources of pollution. Although the TMDL program originated from Section 303d of the Clean Water Act, it was largely overlooked during the 1970s and 1980s as states focused on bringing point sources of pollution into compliance with NPDES permits. Citizen lawsuits during the 1980s forced EPA to develop guidance for the TMDL program, which is now considered to be pivotal in securing the nation's water quality goals. Under TMDL regulations promulgated in 1992, EPA requires states to list waters that are not meeting water quality criteria set for specific designated uses. For each impaired water, the state must identify the amount by which point and nonpoint sources of pollution must be reduced in order for the waterbody to meet its stated water quality standards. Meeting these requirements, many of which have been imposed by court order or consent decree, has become the most pressing and significant regulatory water quality challenge for the states since passage of the Clean Water Act.

Given the most recent lists of impaired waters submitted to EPA, there are about 21,000 polluted river segments, lakes, and estuaries making up over 300,000 river and shore miles and 5 million lake acres. The number of TMDLs required for these impaired waters is greater than 40,000. Under the 1992 EPA guidance or the terms of lawsuit settlements, most states are required to meet an 8- to 13-year deadline for completion of TMDLs. Budget requirements for the program are staggering as well, with most states claiming that they do not have the personnel and financial resources necessary to assess the condition of their waters, to list waters on 303d, and to develop TMDLs. A March 2000 report of the General Accounting Office (GAO) highlighted the pervasive lack of data at the state level available to set water quality standards, to determine what waters are impaired, and to develop TMDLs.

Subsequent to the GAO report and following issuance by EPA of updated TMDL regulations, Congress requested that the National Research Council (NRC) assess the *scientific basis* of the TMDL program, including:

- the information required to identify sources of pollutant loadings and their respective contributions to water quality impairment,
- the information required to allocate reductions in pollutant loadings among sources,
- whether such information is available for use by the states and whether such information, if available, is reliable, and
- if such information is not available or is not reliable, what methodologies should be used to obtain such information.

Of concern to the nation's lawmakers was the paucity of data and information available to the states to comply with program requirements and meet water quality standards. Indeed, as the TMDL program proceeds, the best available science, especially with regard to nonpoint sources of pollution, will be needed for regulatory and nonregulatory actions to be equitable and effective. Report recommendations are targeted (1) at those issues where science can and should make a significant contribution and (2) at barriers (regulatory and otherwise) to the use of science in the TMDL program. Chapters 2, 3, and 4 discuss the information required to set water quality standards, to list waters as impaired, and to develop TMDLs (including the identification of pollution sources), while Chapter 5 discusses the role of science in allocating pollutant loading among sources. Chapters 3 and 4 go into considerable detail about the monitoring, modeling, and statistical analysis methods needed to collect data and convert it to information, and to assess and reduce uncertainty.

This report represents the consensus opinion of the eight-member NRC committee assembled to complete this task. The committee met three times during a three-month period and heard the testimony of over 40 interested organizations and stakeholder groups. The NRC committee feels that the data and science have progressed sufficiently over the past 35 years to support the nation's return to ambient-based water quality management. Given reasonable expectations for data availability and the inevitable limits on our conceptual understanding of complex systems, statements about the science behind water quality management must be made with acknowledgment of uncertainties. The committee has concluded that there are creative ways to accommodate this uncertainty while moving forward in addressing the nation's water quality challenges. These broad conclusions are elaborated upon below.

## TMDL PROGRAM GOALS

**The TMDL program should focus first and foremost on improving the condition of waterbodies as measured by attainment of designated uses.** Work on meeting the strict time demands within the budget constraints cited by most states has focused on administrative outcomes as measures of success for the TMDL program. However, the success of the nation's premier water quality program should not be measured by the number of TMDL plans completed and approved, nor by the number of NPDES permits issued or cost share dollars spent. Success is achieved when the condition of a waterbody supports its designated use. Adequate monitoring and assessment must be used to improve the listing of impaired waterbodies and to characterize the effectiveness of the actions taken to meet the designated use.

**The program should encompass all stressors, both pollutants and pollution, that determine the condition of the waterbody<sup>1</sup>.** Proposed regulations may limit the applicability of the program to only those water quality problems caused by chemical and physical pollutants. Given their demonstrated effectiveness, activities that can overcome the effects of "pollution" and bring about waterbody restoration—such as habitat restoration and channel modification—should not be excluded from consideration during TMDL plan implementation.

**Scientific uncertainty is a reality within all water quality programs, including the TMDL program, that cannot be entirely eliminated.** The states and EPA should move forward with decision-making and implementation of the TMDL program in the face of this uncertainty while making substantial efforts to reduce uncertainty. Securing designated uses is limited not only by a focus on administrative rather than water quality outcomes in the TMDL process, but also by unreasonable expectations for predictive certainty among regulators, affected sources, and stakeholders.

## CHANGES TO THE TMDL PROCESS

This report focuses on how scientific data and information should be used within the TMDL program. Science plays a crucial role in the standards-setting process, in the decision to add waters to the 303d list, in the development of the TMDL plan, and in the allocation of pollutant loads among various sources (although its importance relative to the role of policy decisions varies). The committee finds that although the state of the science is sufficient to develop TMDLs to meet ambient water quality goals in many situations, programmatic issues substantially hinder the use of the best available science. Thus, the following changes in the TMDL process are recommended, with an understanding that without such changes, the TMDL program will be unable to incorporate and improve upon the best available scientific information.

**States should develop appropriate use designations for waterbodies in advance of assessment and refine these use designations prior to TMDL development.** Clean Water Act goals of fishable and swimmable waters are too broad to be operational as statements of designated uses. Thus, there should be greater stratification of designated uses at the state level (such as primary and secondary contact recreation). The appropriate designated use may not be the use that would be realized in the water's predisturbance condition. Sufficient science and examples exist for all states to inject this level of detail into their water quality standards. To

---

<sup>1</sup> This refers to the legal definitions of "pollutant" and "pollution," which are given in Box 1-1 of Chapter 1.

ensure that designated uses are appropriate, use attainability analysis should be considered for all waterbodies before a TMDL is developed.

**EPA should approve the use of both a preliminary list and an action list instead of one 303d list.** Many waters now on state 303d lists were placed there without the benefit of adequate water quality standards, data, or waterbody assessment. These potentially erroneous listings contribute to a very large backlog of TMDL segments and foster the perception of a problem that is larger than it may actually be. States should be allowed to move those waters for which there is a lack of adequate water quality standards or data and analysis from the 303d list back to a preliminary list, as shown in Figure ES-1. This would provide the assurance that listed waters are indeed legitimate and merit the resources required to complete a TMDL. If no legal mechanism exists to bring this about, one should be created by Congress. The data requirements and other criteria that should be used to differentiate the preliminary list from the action list are discussed in the report. No waterbody should remain on the preliminary list for more than one rotating basin cycle.

**TMDL plans should employ adaptive implementation.** As shown in Figure ES-2, adaptive implementation is a cyclical process in which TMDL plans are periodically assessed for their achievement of water quality standards including designated uses. If the implementation of the TMDL plan is not achieving attainment of the designated use, scientific data and information should be used to revise the plan. Adaptive implementation is needed to ensure that the TMDL program is not halted because of a lack of data and information, but rather progresses while better data are collected and analyzed with the intent of improving upon initial TMDL plans. Congress and EPA need to address the policy barriers that inhibit adoption of an adaptive implementation approach to the TMDL program, including the issues of future growth, the equitable distribution of cost and responsibility among sources of pollution, and EPA oversight.

## USE OF SCIENCE IN THE TMDL PROGRAM

This report suggests changes in the data used and analytical methods employed that will support the revisions to the TMDL process recommended above. The following sections highlight the use of science in the TMDL program steps as illustrated in Figure ES-1. Additional recommendations about the scientific basis of the program not included in this executive summary are found throughout the report.

### Water Quality Standards

The TMDL process is primarily a measurement process and as such is significantly impacted by the setting of water quality standards. Water quality standards consist of two parts: a specific desired use appropriate to the waterbody, termed a *designated use*, and a *criterion* that can be measured to establish whether the designated use is being achieved.

**The criterion used to measure whether the condition of a waterbody supports its designated use can be positioned at different points along the causal chain connecting stressors (such as land use activities) to biological responses in a waterbody.** Positioning the criterion involves a trade-off between forecast error for the stressor–criterion relationship and the adequacy of the criterion as a measure (surrogate) for the designated use. Model results that

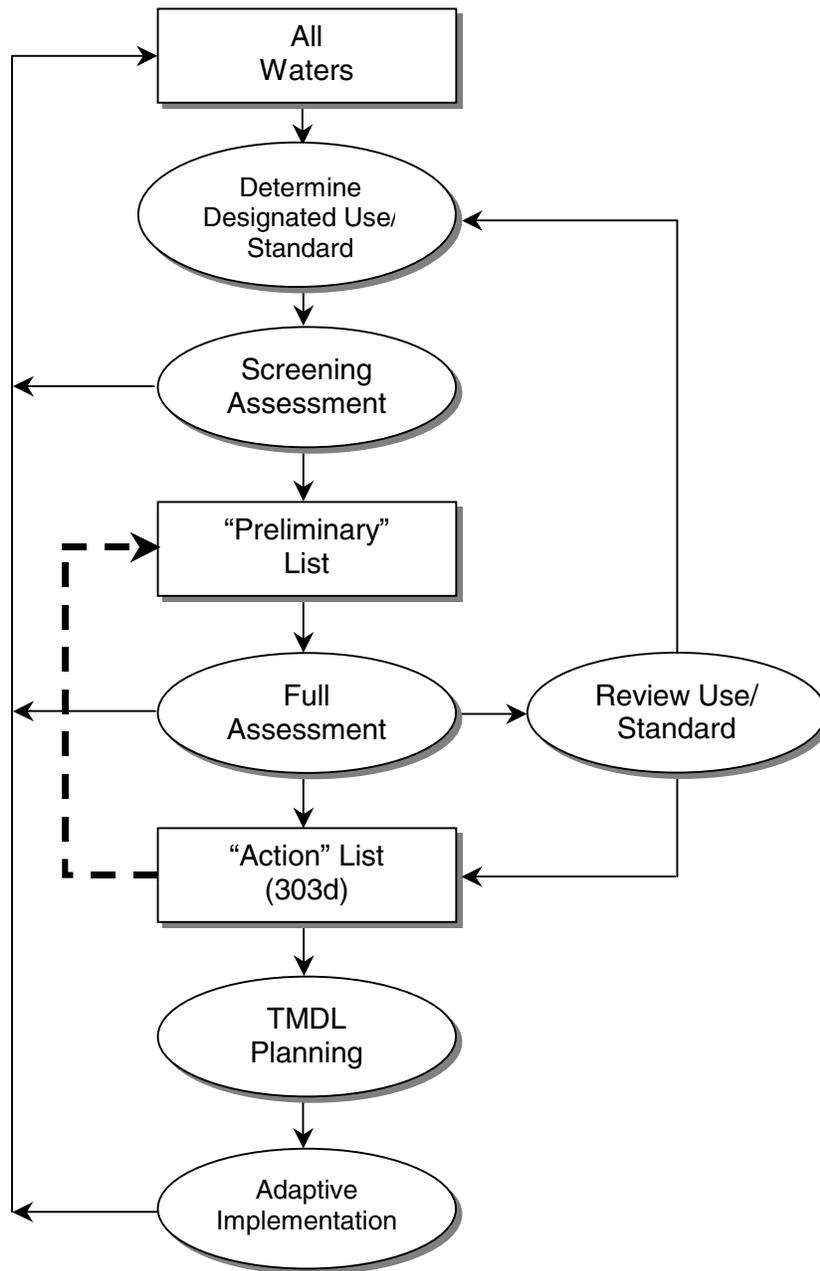


FIGURE ES-1 Framework for water quality management.

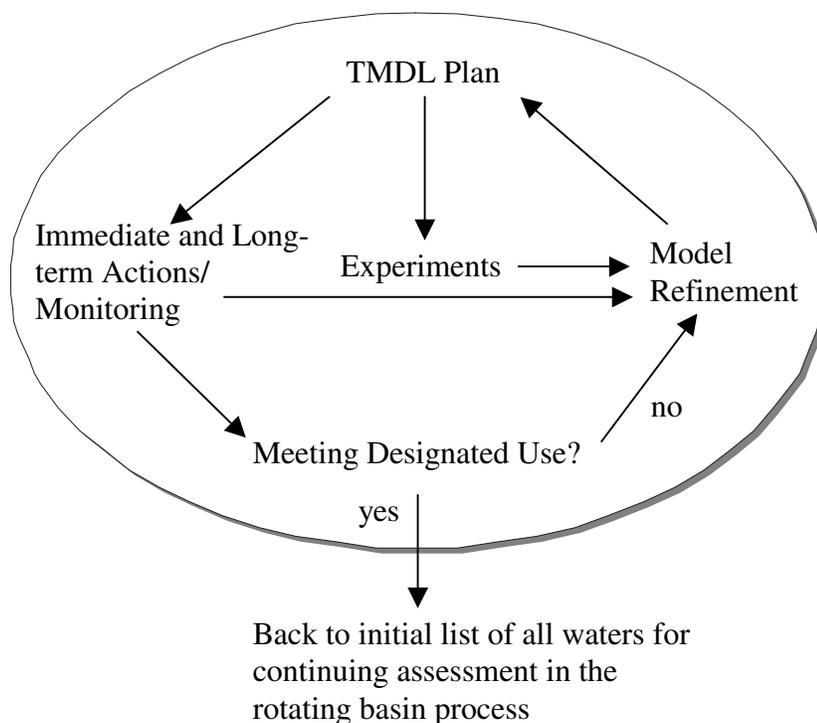


FIGURE ES-2 Adaptive implementation flowchart.

forecast the impact of the stressor on the criterion are likely to be more uncertain as the criterion is positioned farther from the stressor and closer to the designated use. On the other hand, positioning the criterion closer to the stressor and farther from the designated use is likely to mean that the criterion is a poorer measure or surrogate for the designated use.

**Biological criteria should be used in conjunction with physical and chemical criteria to determine whether a waterbody is meeting its designated use.** In general, biological criteria are more closely related to the designated uses of waterbodies than are physical or chemical measurements. However, guiding management actions to achieve water quality goals based on biological criteria also depends on appropriate modeling efforts.

**All chemical criteria and some biological criteria should be defined in terms of magnitude, frequency, and duration.** The frequency component should be expressed in terms of a number of allowed excursions in a specified period. Establishing these three dimensions of the criterion is crucial for successfully developing water quality standards and subsequently TMDLs.

**Water quality standards must be measurable by reasonably obtainable monitoring data.** In many states, there is a fundamental discrepancy between the criteria that have been chosen to determine whether a waterbody is achieving its designated use and the frequency with which water quality data are collected. This report gives examples of this phenomenon and makes suggestions for improvement.

## Waterbody Assessment and Listing

Ambient monitoring and assessment programs should form the basis for determining whether waters are placed on the preliminary list or the action list.

**EPA needs to develop a uniform, consistent approach to ambient monitoring and data collection across the states.** The rotating basin approach used by several states is an excellent example of a framework that can be used to conduct waterbody assessments of varying levels of complexity, for example to support 305b reports, to place impaired waters on a preliminary list or action list, and to develop TMDLs. **In that regard, EPA should set the TMDL calendar in concert with each state's rotating basin program.**

**Evidence suggests that limited budgets are preventing the states from monitoring for a full suite of indicators to assess the condition of their waters and from embracing a rotating basin approach to water quality management.** Currently, EPA is assessing the sufficiency of state resources to develop and implement TMDLs. Depending on the results of that assessment, Congress might consider aiding the states, for example through matching grants to improve data collection and analysis.

**Evaluated data and evidence of violation of narrative standards should not be exclusively used for placement of a waterbody on the action list, but is useful for placement on the preliminary list.** EPA should develop guidance to help states translate narrative standards to numeric criteria for the purposes of 303d listing and TMDL calculation and implementation.

**EPA should endorse statistical approaches to defining all waters, proper monitoring design, data analysis, and impairment assessment.** For chemical parameters, these statistical approaches might include the binomial hypothesis test or other methods that can be more effective than the raw score approach in making use of the data collected to determine water quality impairment. For biological parameters, they might focus on improvement of sampling designs, more careful identification of the components of biology used as indicators, and analytical procedures that explore biological data as well as integrate biological information with other relevant data.

## TMDL Development

The scientific basis of the latter half of the TMDL process revolves around a wide variety of models of varying complexity that are used to relate waterbody conditions to different land uses and other factors. Models are a required element of developing TMDLs because water quality standards are probabilistic in nature. However, although models can aid in the decision-making process, they do not eliminate the need for informed decision-making.

**Uncertainty must be explicitly acknowledged both in the models selected to develop TMDLs and in the results generated by those models.** Prediction uncertainty must be estimated in a rigorous way, models must be selected and rejected on the basis of a prediction error criterion, and guidance/software needs to be developed to support uncertainty analysis.

**The TMDL program currently accounts for the uncertainty embedded in the modeling exercise by applying a margin of safety (MOS); EPA should end the practice of arbitrary selection of the MOS and instead require uncertainty analysis as the basis for MOS determination.** Because reduction of the MOS can potentially lead to a significant

reduction in TMDL implementation cost, EPA should place a high priority on selecting and developing TMDL models with minimal forecast error.

**EPA should selectively target some postimplementation TMDL compliance monitoring for verification data collection so that model prediction error can be assessed.** TMDL model choice is currently hampered by the fact that relatively few models have undergone thorough uncertainty analysis. Postimplementation monitoring at selected sites can yield valuable data sets to assess the ability of models to reliably forecast response.

**EPA should promote the development of models that can more effectively link environmental stressors (and control actions) to biological responses.** A first step will be the development of conceptual models that account for known system dynamics. Eventually, these should be strengthened with both mechanistic and empirical models, although empirical models are more likely to fill short-term needs. Such models are needed to promote the wider use of biocriteria.

**Monitoring and data collection programs need to be coordinated with anticipated water quality and TMDL modeling requirements.** For many parameters, there are insufficient data to have confidence in the results generated by some of the complex models used in practice today. Thus, EPA should not advocate detailed mechanistic models for TMDL development in data-poor situations. Either simpler, possibly judgmental, models should be used or, preferably, data needs should be anticipated so that these situations are avoided.

**In order to carry out adaptive implementation, EPA needs to foster the use of strategies that combine monitoring and modeling and expedite TMDL development.** This should involve the use of Bayesian techniques that can combine different types of information. Although the modeling framework proposed in this report calls for improvements in models, there are existing models that can be applied rapidly and effectively within an adaptive implementation framework.

## FINAL THOUGHTS

Through the adoption and use of the preliminary list/action list approach, adequate monitoring and assessment approaches, sound selection of appropriate models, and adaptive implementation described in this report, the TMDL program will be capable of utilizing the best available scientific information. It is worth noting that the success of these approaches is directly related to the provision of adequate personnel and financial resources for data collection, management, and interpretation and for the development of sufficiently detailed and stratified water quality standards.

## Agenda Item 9

**Goals, Objectives, and Evaluation Criteria:  
Assessing progress in State's efforts to  
implement CWA Section 303(d)**

## Water Quality Attainment Strategies

### Application of the TMDL Process to Achieve Water Quality Standards

#### Goals, Objectives and Evaluation Criteria

#### I. Goals

1. Ensure all waters of the State are protected for the use and enjoyment of the People of California.
2. Ensure that the beneficial uses of water are maintained at the highest level reasonable considering all the demands being made and to be made on those waters.
3. Ensure the protection of water quality for the health, safety and welfare of the people of California through the full power and jurisdiction provided by the laws of the State.

#### II. Objectives

1. Identify, list, and prioritize all surface waters that are not attaining water quality standards (Impaired Waters list).
2. Develop water quality attainment strategies that address all waters on the Impaired Waters list and that:
  - \* Lead to actions that correct and preserve water quality as soon as possible
  - \* Coordinate efforts to address multiple adverse impacts on water quality by managing in a watershed context
  - \* Satisfy all obligations under federal and state law, including the requirements of Section 303(d) of the Clean Water Act pertaining to TMDLs.
3. Implement corrective and protective actions consistent with the NPDES, Stormwater, and Nonpoint Source programs and other programs and efforts of federal, state, and local agencies that can be coordinated to produce sustainable management measures protecting water quality and the beneficial uses of water.
4. Actively seek and manage fiscal resources sufficient to support the development of needed water quality attainment strategies.
5. Ensure public understanding of the need for water quality management initiatives and the water quality status of their watersheds.

#### III. Elements and Evaluation Criteria

Objective: *Identify, list, and prioritize all surface waters that are not attaining water quality standards (Impaired Waters list).*

1. Work Element: Revise the list of Impaired Waters by April 2002.
  - \* Regional Boards solicit information on behalf of SWRCB

- \* Regional Boards formulate recommendations regarding listing and delisting and transmit them to SWRCB
  - \* SWRCB formulate list, conduct workshop and adopt at regularly scheduled Board meeting in February or March 2002.
  - \* Transmit list and record to USEPA for review
2. Work Element: Develop a Policy to direct revisions to the Impaired Waters list after April 2002.
- \* Policy should be complete 12-15 months before list is due to USEPA
  - \* Consider applications of the Weight-of-Evidence approach
  - \* Consider definitions for data quality and quantity
  - \* Establish the policy through a public hearing process
3. Work Element: Design and implement a coordinated statewide water quality monitoring program.
- \* Establish the Surface Water Ambient Monitoring Program (SWAMP). Develop and implement standard statewide protocols for sampling, processing, analytical assessment methods, data submittal, quality assurance, and quality control measures for all data collected as part of SWAMP.
  - \* Establish necessary contracts to support SWAMP.
  - \* Conduct workshops and training sessions to inform staff and the public of protocol requirements.
4. Work Element: Design and implement a data storage mechanism that allows ready access to all water board collected water quality monitoring data.
- \* Develop data repository for all SWAMP data and metadata.
  - \* Develop Geographic Information Systems capabilities for application in assessing SWAMP data and other available information.
  - \* Develop cataloging and information management tools for all public information received in response to the 303(d) listing solicitation.
  - \* Develop reporting tools that provide ready access to all SWAMP data and metadata.

**Objective:** *Develop water quality attainment strategies that address all waters on the Impaired Waters list and that:*

- \* *Lead to actions that correct and preserve water quality as soon as possible*
- \* *Coordinate efforts to address multiple adverse impacts on water quality by managing in a watershed context*

- \* *Satisfy all obligations under federal and state law, including the requirements of Section 303(d) of the Clean Water Act pertaining to TMDLs.*
1. Work Element: Develop 3 -year workplans and 5-year planning schedules for the highest priority waters on the Impaired Waters list. Develop short-term workplans for other waters where a near term action may preclude more extensive and costly actions at a later date.
    - \* Develop consolidated 3 year workplans that account for all dedicated TMDL funding (State and Federal)
    - \* Revised 5-year planning schedules in the annual update to the Watershed Management Initiative chapters.
  2. Work Element: Establish formal and informal dialogue with interested parties, including representatives of federal, state, and local programs, in each watershed where a water quality attainment strategy is being developed.
    - \* Pursue opportunities to integrate program objectives of other agencies with TMDL efforts. Establish written agreements as needed to capture the nature of the coordinated efforts.
    - \* Support, encourage, and participate in watershed stakeholder groups
    - \* Conduct staff workshops on key elements of TMDLs under development
  3. Work Element: Undertake assessments as needed to characterize the conditions and needs of each water identified in a 3-year workplan.
    - \* Utilize staff and contract resources to secure necessary information to provide adequate scientific basis for numeric targets and implementation actions
    - \* Collaborate with affected parties to develop needed information
    - \* Encourage initiatives by local agencies and third parties to undertake needed assessments with technical assistance by Regional Boards
  4. Work Element: For each waterbody in a 3-year workplan, identify and formally establish quantitative features that describe the desired condition of the water, considering the conditions throughout the watershed, where appropriate.
    - \* Clarify Basin Plan requirements and standards to ensure that quantitative features exist to guide the water quality attainment strategies
    - \* Ensure quantitative features are sufficient to satisfy TMDL requirements
    - \* Create new Basin Plan requirements, as needed, to provide clarity regarding quantitative features
    - \* Identify enforceable features of water quality attainment strategies and TMDLs

5. Work Element: For each waterbody in a 3-year workplan, develop a program of implementation designed to attain the applicable water quality standards and considering any quantitative features identified. Programs of implementation will consider resources of affected parties available within the watershed and resources available to the water boards.
  - \* For each TMDL include the program of implementation as part of the Basin Plan amendment
  - \* Work with stakeholders to identify appropriate implementation options
  - \* Evaluate costs of implementation and resources available within the watershed community for responding to implementation need
  - \* Evaluation of costs must be sufficient to satisfy CEQA requirements.
6. Work Element: Develop Basin Plan Amendments for each program of implementation. Include any numeric targets or water quality standards revisions necessary to support the programs of implementation. Ensure adequacy and consistency with Clean Water Act Section 303(d) Requirements.
  - \* Assemble formal record and all necessary notices and filings for consideration of water quality attainment strategy/TMDL as Basin Plan amendment
  - \* Conduct Regional Board and State Board hearings
  - \* Submit to OAL and EPA for approval
7. Work Element: Implement a statewide workplan and tracking mechanism and report regularly on progress towards establishing water quality attainment strategies.
  - \* Establish a prototype database for planning and tracking all Regional Board TMDL related work
  - \* Migrate prototype database to integrated database supported by OIT and consistent with electronic workplan requirements from Office of Statewide Issues.
  - \* Utilize database as basis for consolidated state/federal grant workplans
8. Work Element: Provide technical and administrative training and assistance (including recruitment and hiring) to staff engaged in developing water quality attainment strategies.
  - \* Identify needs and develop appropriate training.
9. Work Element: Conduct a statewide Roundtable and other work groups of State Board, Regional Board, and USEPA staff engaged in TMDL development dedicated to sharing technical, policy, and programmatic information
  - \* Conduct the Roundtable quarterly
  - \* Establish a TMDL Team within the Division of Water Quality
  - \* Using the Roundtable as an organizing forum, develop workgroup for short term projects as needed.

**Objective:** *Implement corrective and protective actions consistent with the NPDES, Stormwater, and Nonpoint Source programs and other programs and efforts of federal, state, and local agencies that can be coordinated to produce sustainable management measures protecting water quality and the beneficial uses of water.*

1. Work Element: Direct attention to the NPDES permits that offer the greatest opportunity to resolve problems associated with TMDLs.
  - \* Identify any outdated permits in waters listed as high priority on the Impaired Waters list.
  - \* Schedule permit reissuance consistent with TMDL needs
2. Work Element: Develop implementation features that take advantage of stormwater permit conditions, revise stormwater permits as needed to implement TMDLs
3. Work Element: Improve nexus of TMDL and NPS program. Develop implementation features consistent with NPS program workplan. Utilize BMP assessments and management measures when developing implementation plans.
4. Integrate program elements for state, federal, and local programs into water quality attainment strategies. Work with stakeholders to align programs around water quality needs and common program interests.

**Objective:** *Actively seek and manage fiscal resources sufficient to support the development of needed water quality attainment strategies.*

1. Work Element: Coordinate USEPA grant programs and State funds to support water quality attainment strategy development.
  - \* Ensure electronic database contains sufficient information for federal workplan approval
  - \* Develop standard calendar for workplan development.
2. Work Element: Identify critical areas of need and solicit resources from appropriate entities to support these areas. Develop annual state budget requests to support water quality attainment strategy development and implementation.
3. Work Element: Evaluate innovative approaches to financing water quality improvements.
  - \* Evaluate pollutant trading options for California
  - \* Develop master contracts
  - \* Identify opportunities for building off of local expenditures
  - \* Direct public grant and loan programs to enhance collaborative funding of water quality attainment strategies
4. Work Element: Seek legislative changes, as needed, that support timely completion and implementation of water quality management efforts.
  - \* Participate in annual State budget process

- \* Work with stakeholder groups and interested parties to develop acceptable legislative initiatives

**Objective:** *Ensure public understanding of the need for water quality management initiatives and the water quality status of their watersheds.*

1. Work Element: Improve content of internet sites, including providing TMDL summaries, calendars of key process steps and stakeholder meetings, and calendars of formal actions.
  - \* Regularly revise SWRCB web page content.
  - \* Link to all pertinent Regional Board web pages
  - \* Link to appropriate pages from states and federal agencies
2. Work Element: Support, encourage, and participate in local Stakeholder groups. Seek methods to ensure stakeholder groups sustain participation by all interested parties.
3. Work Element: Publish reports for the general public. Regularly report on the overall status of the effort to develop and implement water quality attainment strategies. Report on key aspects of water quality management and successes. Evaluate and use other appropriate methods of public communication, such as Public Service Announcements, television programming and local outreach and education efforts.
4. Work Element: Promote and take advantage of opportunities to engage K-12 educational efforts and University of California Extension efforts to define stakeholder roles in attaining water quality standards.

## Agenda Item 11

### Structure of the TMDL Program

## SWRCB'S TMDL STRUCTURE

July 5, 2001

The following briefly describes how staff are organized to address TMDLs at the State and Regional Boards. Some Regional Boards have TMDL units, while others assign work across programs. In all cases, funding is pooled from a variety of programs to develop a TMDL, reflecting the broad expertise that is required to develop TMDLs. Staff are shared across programs to utilize expertise in program areas such as basin planning, monitoring and assessment, storm water, nonpoint source, GIS and data management, and in technical areas such as pathogens, metals, and toxicity.

### **STATE BOARD:**

The State Board does not have a TMDL program per say, but does have a TMDL Team of staff from a variety of programs that influence the development, administration and implementation of TMDLs at various stages. The Team is lead by the State TMDL Coordinator, and consists of staff from Basin Planning, Office of Chief Counsel, Monitoring and Assessment, and Stormwater. Among its numerous duties, the Team conducts the TMDL Roundtable, meetings geared to facilitate technical and administrative expertise between the State and Regional Boards.

### **REGIONAL BOARDS**

#### **Region 1:**

The North Coast Regional Water Quality Control Board recently reorganized in November 2000 to add a new TMDL Development Unit. This TMDL unit is organized by watershed and has 7 TMDL staff including the unit chief. Staff are assigned to TMDLs in the Gualala, Mattole, and Klamath watersheds. One staff person is dedicated to GIS support and Data Management. The unit supports other units whose work links closely to TMDL development, including Monitoring and Assessment and Basin Planning Units. Staff resources assigned to TMDL development have increased by about 40% in the last year.

#### **Region 2:**

The San Francisco Bay Regional Water Quality Control Board has a TMDL Section within its Watershed Division, with 8 dedicated staff. Staff and program resources are organized by TMDL projects within a particular watershed and/or are grouped by pollutant categories to maximize certain water quality expertise, (e. g., mercury, sediment). Staff from other units in the Planning and Policy and Watershed Divisions participate as needed. Staff resources have increased approximately 50% in the last year.

**Region 3:** The Central Coast Regional Water Quality Control Board contains a TMDL Unit within its Watershed Branch- containing eight dedicated staff and a unit supervisor. Staff and program resources are organized by TMDL projects within a particular watershed and/or grouped by pollutant categories to maximize certain water quality expertise. One of the eight staff provides GIS support and data management. TMDL efforts are closely coordinated with staff in other units implementing pollution control activities, monitoring and assessment and basin planning. The program has increased in staff resources 60% in the last year.

**Region 4:** The Los Angeles Regional Water Quality Control Board has two TMDL units that are organized on a watershed basis. The Region has committed to an aggressive schedule to complete 92

TMDLs within 13 years. The Region's first TMDL was approved by U.S. EPA in December 2000. On January 25, 2001, the Regional Board adopted the Los Angeles River Trash TMDL. The units are presently working on developing eight TMDLs, addressing trash, chloride, pathogens, and nutrients. In addition, the TMDL Units work closely with the Stormwater and Nonpoint Source Units in TMDL implementation issues. To address the current workload, Region 4 has increased staffing by approximately 50% during the past year.

**Region 5:**

The Central Valley Regional Water Quality Control Board has 3 TMDL Units within two watershed sections - the San Joaquin River Watershed Section and the Sacramento River Watershed Section. The San Joaquin section contains one TMDL unit and the Sacramento River Watershed section has two TMDL units. TMDL efforts utilize staff resource from other units in the watershed sections involving nonpoint source issues, the Sacramento River Watershed Program, monitoring, and agricultural and regulatory issues, involving approximately 20 staff in TMDL Development. The program has nearly doubled in the last year to address the increased workload.

**Region 6:** The Lahontan Regional Board (South Lake Tahoe and Victorville offices) reorganized in October 2000 to add a new TMDL Development Unit, based in South Lake Tahoe. This TMDL unit has 6 full-time TMDL staff, including the unit chief. TMDL efforts involve staff resources of all watershed units and WMI, Regional Monitoring, and Basin Planning programs. Staff dedicated full-time to TMDLs increased 500% from FY 99/00 to FY 00/01. The TMDL Unit will add one additional staff in FY 01/02, bringing the total number of TMDL development staff to 7.

**Region 7:** The Colorado River Basin Regional Water Quality Control Board has two units that work on TMDLs: a TMDL Development Unit and a TMDL/NPS Implementation Unit. The units contain 12 staff, including 6 dedicated TMDL staff. Additionally TMDL efforts involve staff from basin planning. Staff resources have increased by approximately 50% in the last year to address a growing work demand.

**Region 8:** The Santa Ana Regional Water Quality Control Board has a TMDL Program Manager and staff from 2 different units (Inland Watersheds and Coastal Watershed Units) dedicated to TMDLs. At present, 13 staff work on TMDLs. TMDLs for nutrients, sediment and pathogens for the Newport Bay watershed have been approved by the State and USEPA since 1998. Additional TMDLs are scheduled to be developed in the next 3 years. Staff resources have increased approximately 300% since 1998 to address the growing work demand.

**Region 9:** The San Diego Regional Water Quality Control Board addresses its TMDL effort predominately within its Water Quality Standards Unit. Staff here are dedicated to basin planning, water quality assessment and TMDL development. Approximately 11 staff are devoted for TMDLs.

*State of California*

*Total Maximum Daily Load Milestones*

*6/22/2001*

## ***TMDL Milestones - Region 1***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Albion River - Sediment</i></u>					
Development	Problem Statement		09/2000		3/1/00
	TMDL Report		12/2001		
<u><i>Americano Creek - Nutrients</i></u>					
Development	TMDL Report		02/2006		
<u><i>Big River - Sediment</i></u>					
Development	Problem Statement		09/2000		4/1/01
	TMDL Report		12/2001		
<u><i>Eel River, delta - Sediment</i></u>					
Development	TMDL Report		12/2006		
<u><i>Eel River, delta - Temperature</i></u>					
Development	TMDL Report		12/2006		
<u><i>Eel River, Middle Fork - Sediment</i></u>					
Development	TMDL Report		12/2003		
<u><i>Eel River, Middle Fork - Temperature Sediment</i></u>					
Development	TMDL Report		12/2003		
<u><i>Eel River, middle mainstem - Sediment</i></u>					
Development	TMDL Report		12/2005		
<u><i>Eel River, middle mainstem - Temperature</i></u>					
Development	TMDL Report		12/2005		
<u><i>Eel River, North Fork - Sediment</i></u>					
Development	TMDL Report		12/2002		
<u><i>Eel River, North Fork - Temperature</i></u>					
Development	TMDL Report		12/2002		
<u><i>Eel River, upper mainstem - Sediment</i></u>					
Development	TMDL Report		12/2004		

## ***TMDL Milestones - Region 1***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Eel River, upper mainstem - Temperature</i></u>					
Development	TMDL Report		12/2004		
<u><i>Elk River - Sediment</i></u>					
Development	TMDL Report		12/2009		
<u><i>Estero Americano - Nutrients</i></u>					
Development	TMDL Report		12/2006		
<u><i>Estero Americano - Sediment</i></u>					
Development	TMDL Report		12/2006		
<u><i>Freshwater Creek - Sediment</i></u>					
Development	TMDL Report		12/2009		
<u><i>Garcia River - Sediment</i></u>					
Implementation Planning	Implementation Plan	1/1/01			
Basin Planning	Regional Board Adoption Date	1/1/01			
	State Board Action Date				9/1/00
	Office of Administrative Law Action				2/1/01
<u><i>Garcia River - Temperature</i></u>					
Development	TMDL Report		12/2000		
<u><i>Gualala River - Sediment</i></u>					
Development	TMDL Report		12/2001		
<u><i>Klamath River, mainstem - Low Dissolved Oxygen</i></u>					
Development	Problem Statement	1/1/01			
	TMDL Report		12/2004		
<u><i>Klamath River - Nutrients</i></u>					
Development	Problem Statement	1/1/01			
	TMDL Report		04/2004		
<u><i>Klamath River - Temperature</i></u>					
Development	Problem Statement	4/1/01			
	TMDL Report		04/2004		

## ***TMDL Milestones - Region 1***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Lake Pillsbury - Mercury</i></u>	Development		12/2011		
<u><i>Mad River - Sediment</i></u>	Development		12/2007		
<u><i>Mad River - Turbidity</i></u>	Development		02/2007		
<u><i>Mattole River - Sediment</i></u>	Development				
	Impairment Assessment	7/1/01			
	Problem Statement	1/1/01			
	TMDL Report		07/2002		
<u><i>Mattole River - Temperature</i></u>	Development				
	Problem Statement	1/1/01			
	TMDL Report		07/2002		
<u><i>Navarro River - Sediment</i></u>	Development				7/1/00
<u><i>Navarro River - Temperature</i></u>	Development				7/1/00
<u><i>Noyo River - Sediment</i></u>	Development				8/1/2099
<u><i>Russian River - Sediment</i></u>	Development		12/2011		
<u><i>Scott River - Sediment</i></u>	Development		04/2005		
<u><i>Scott River - Temperature</i></u>	Development		04/2005		
<u><i>Shasta River - Dissolved Oxygen</i></u>	Development		09/2005		

## ***TMDL Milestones - Region 1***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Shasta River - Temperature</i></u>	Development		09/2005		
<u><i>Ten Mile River - Sediment</i></u>	Development		09/2000		10/1/00
<u><i>Tomki Creek - Sediment</i></u>	Development		12/2004		
<u><i>Trinity River, lower reaches - Sediment</i></u>	Development		12/2001		
<u><i>Trinity River, middle reach - Sediment</i></u>	Development		12/2001		
<u><i>Trinity River, South Fork - Temperature</i></u>	Development		12/2008		
<u><i>Trinity River, upper reach - Sediment</i></u>	Development		12/2001		

## ***TMDL Milestones - Region 2***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>303(d) List</i></u>					
Management	Listing Documents	7/1/01	01/2002		
<u><i>Guadalupe River Watershed - Mercury</i></u>					
Development	Problem Statement	7/1/01	06/2002		
	Source Analysis	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		
<u><i>Napa River - Sediment</i></u>					
Development	Numeric Targets	7/1/01	04/2002		
	Source Analysis	7/1/01	06/2002		
	TMDL Report	1/1/02	06/2002		
Implementation Planning	Implementation Plan	7/1/02	06/2002		
<u><i>Program Management</i></u>					
Management	Work Plans	7/1/01	06/2002		
<u><i>Regionwide Sediment - Sediment</i></u>					
Development	Not Applicable	7/1/01	06/2002		
<u><i>San Francisco Bay - Copper</i></u>					
Development	Problem Statement	7/1/01	06/2002		
	Source Analysis	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		
<u><i>San Francisco Bay - Mercury</i></u>					
Basin Planning	Peer Review	8/1/01	09/2001		
	Prepare Amendment	7/1/01	08/2001		
	CEQA Analysis	7/1/01	08/2001		
	Present Amendment to Board	9/1/01	11/2001		
<u><i>San Francisco Bay - Nickel</i></u>					
Development	Problem Statement	7/1/01	06/2002		
	Source Analysis	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		

## ***TMDL Milestones - Region 2***

		Start Date	Original Completion	Revised Completion	Actual Completion
<b><u>San Francisco Bay - PCBs</u></b>					
Development	Linkage Analysis	7/1/01	06/2002		
	Numeric Targets	7/1/01	01/2002		
	TMDL & Allocations	1/1/02	04/2002		
	TMDL Report	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		
<b><u>San Francisquito Creek - Sediment</u></b>					
Development	Problem Statement	7/1/01	06/2002		
	Source Analysis	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		
<b><u>Sonoma Creek - Sediment</u></b>					
Development	Problem Statement	7/1/01	06/2002		
	Source Analysis	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		
<b><u>South San Francisco Bay - Copper</u></b>					
Basin Planning	Prepare Amendment	7/1/01	01/2002		
<b><u>South San Francisco Bay - Nickel</u></b>					
Basin Planning	Prepare Amendment	7/1/01	01/2002		
<b><u>Tomaes Bay - Pathogens</u></b>					
<b><u>Pathogens</u></b>					
Development	Linkage Analysis	7/1/01	04/2002		
	TMDL & Allocations	1/1/02	06/2002		
	TMDL Report	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		
<b><u>Urban Creeks - Diazinon</u></b>					
Development	Linkage Analysis	7/1/01	01/2002		
	Numeric Targets	7/1/01	06/2002		
	TMDL & Allocations	7/1/01	01/2002		
	TMDL Report	1/1/02	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2002		

## *TMDL Milestones - Region 2*

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Walker Creek - Mercury</i></u>					
Development	Problem Statement	7/1/01	06/2002		
	Source Analysis	7/1/01	06/2002		
Implementation Planning	Implementation Plan	7/1/01	06/2001		

### ***TMDL Milestones - Region 3***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>303(d) List Process</i></u>					
Management	Listing Documents		06/2003		
<u><i>Chorro Creek - Metals</i></u>					
Basin Planning	Prepare Amendment		06/2001		
	Regional Board Hearing Date		12/2001		
Management			03/2001		
<u><i>Clear Creek-Hernandez Reservoir - Metals</i></u>					
Development	Problem Statement		06/2001		
	Numeric Targets		06/2002		
	Source Analysis		06/2002		
Implementation Planning			12/2002		
<u><i>Las Tablas Creek- Nacimiento Reservoir - Mercury</i></u>					
Implementation Planning			06/2001		
Basin Planning	Prepare Amendment		12/2001		
	Regional Board Hearing Date		06/2002		
<u><i>Monterey Harbor - Metals</i></u>					
Development	Problem Statement		06/2002		
	Numeric Targets		06/2003		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2005		
	TMDL Report		06/2004		
<u><i>Morro Bay - Metals</i></u>					
Development	Monitored Assessment		06/2001		
	Problem Statement		06/2002		
	Numeric Targets		02/2002		
	Source Analysis		06/2002		
	TMDL & Allocations		12/2002		
	TMDL Report		06/2003		
Implementation Planning			12/2003		
Basin Planning	Prepare Amendment		12/2003		
	Regional Board Hearing Date		06/2004		

### ***TMDL Milestones - Region 3***

		Start Date	Original Completion	Revised Completion	Actual Completion
<b><u>Morro Bay - Nutrients</u></b>					
Implementation Planning			12/2000		
Basin Planning	Prepare Amendment		06/2002		
	Regional Board Hearing Date		06/2002		
Implementation	Monitoring Status Report		06/2002		
<b><u>Morro Bay - Pathogens</u></b>					
Development	Numeric Targets		12/2001		
	Source Analysis		12/2001		
	TMDL & Allocations		06/2002		
	TMDL Report		06/2002		
Implementation Planning	Implementation Plan		06/2003		
Basin Planning	Prepare Amendment		06/2003		
	Regional Board Hearing Date		12/2002		
Implementation	Monitoring Status Report		06/2003		
<b><u>Morro Bay - Priority Pollutants</u></b>					
Development	Monitored Assessment		06/2001		
	Problem Statement		06/2002		
	Numeric Targets		06/2002		
	Source Analysis		06/2002		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Implementation Planning			06/2003		
Basin Planning	Regional Board Hearing Date		04/2004		
<b><u>Morro Bay - Siltation</u></b>					
Implementation Planning			12/2000		
Basin Planning	Prepare Amendment		06/2001		
	Regional Board Hearing Date		12/2001		
Implementation	Monitoring Status Report		06/2004		

## ***TMDL Milestones - Region 3***

		Start Date	Original Completion	Revised Completion	Actual Completion
<b><u>Pajaro River - Nutrients</u></b>					
Development	Numeric Targets		12/2000		
	Source Analysis		06/2002		
	TMDL & Allocations		06/2002		
	TMDL Report		06/2003		
	Implementation Planning	Implementation Plan		06/2003	
Basin Planning	Regional Board Hearing Date		06/2003		
<b><u>Pajaro River - Siltation</u></b>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	Source Analysis		06/2003		
	TMDL & Allocations		12/2003		
	TMDL Report		06/2003		
Implementation Planning	Implementation Plan		06/2003		
Basin Planning	Regional Board Hearing Date		06/2004		
<b><u>Project Management</u></b>					
Management	Work Plans		06/2005		
<b><u>Salinas River (Espinosa Slough and Rec Canal) - Priority Organics</u></b>					
Development	Problem Statement		06/2003		
	TMDL Report		06/2003		
Implementation Planning	Implementation Plan		06/2004		
Basin Planning	Prepare Amendment		06/2004		
	Present Amendment to Board		06/2005		
<b><u>Salinas River - Nutrients</u></b>					
Development	Problem Statement		06/2002		
	Numeric Targets		06/2002		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Implementation Planning			06/2004		
Basin Planning	Regional Board Hearing Date		04/2007		

## ***TMDL Milestones - Region 3***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Salinas River - Pesticides</i></u>					
Development	Problem Statement		06/2001		
	Numeric Targets		06/2002		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2004		
Basin Planning	Regional Board Hearing Date		04/2007		
<u><i>Salinas River - Salinity</i></u>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Implementation Planning	Implementation Plan		06/2004		
Basin Planning	Regional Board Hearing Date		04/2007		
<u><i>Salinas River - Siltation</i></u>					
Development			06/2003		
	Monitored Assessment		06/2001		
	Problem Statement		06/2001		
	Numeric Targets		06/2001		
	Source Analysis		02/2001		
	TMDL & Allocations		06/2002		
	TMDL Report		06/2002		
Implementation Planning		06/2003			
Basin Planning	Regional Board Hearing Date		06/2003		
<u><i>San Lorenzo River - Nutrients</i></u>					
Implementation	Monitoring Status Report		06/2004		

### *TMDL Milestones - Region 3*

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>San Lorenzo River - Pathogens</i></u>					
Development	Problem Statement		06/2001		
	Numeric Targets		06/2002		
	Source Analysis		06/2002		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Implementation Planning			06/2003		
Basin Planning	Prepare Amendment		06/2003		
	Regional Board Hearing Date		06/2003		
<u><i>San Lorenzo River - Siltation</i></u>					
Implementation Planning			06/2001		
Basin Planning	Prepare Amendment		06/2002		
	Regional Board Hearing Date		06/2002		
<u><i>San Luis Obispo Creek - Nutrients</i></u>					
Development	Problem Statement		06/2002		
	TMDL Report		06/2002		
Implementation Planning			06/2003		
Basin Planning	Implementation Plan		06/2002		
	Prepare Amendment		06/2002		
	Regional Board Hearing Date		04/2004		
<u><i>San Luis Obispo Creek - Pathogens</i></u>					
Development	Monitored Assessment		06/2001		
	Problem Statement		06/2002		
	Numeric Targets		06/2002		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2003		
Implementation Planning	TMDL Report		06/2003		
			06/2003		
Basin Planning	Prepare Amendment		04/2004		
	Regional Board Hearing Date		06/2004		

## ***TMDL Milestones - Region 3***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>San Luis Obispo Creek - Priority Pollutants</i></u>					
Development	Monitored Assessment		06/2001		
	Problem Statement		06/2002		
	Numeric Targets		06/2003		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Implementation Planning			06/2003		
Basin Planning	Regional Board Hearing Date		04/2004		
<u><i>South Coast - Pathogens</i></u>					
Development	Problem Statement		06/2002		
<u><i>South Coast - Siltation</i></u>					
Development	Problem Statement		06/2002		
<u><i>Valencia Creek and Aptos Creek - Siltation</i></u>					
Development	Monitored Assessment		06/2001		
	Problem Statement		06/2001		
	Numeric Targets		12/2001		
	Source Analysis		06/2002		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Implementation Planning			06/2003		
Basin Planning	Regional Board Hearing Date		04/2004		
<u><i>Waddell Creek - Nutrients</i></u>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	Source Analysis		06/2004		
	TMDL & Allocations		06/2004		
	TMDL Report		06/2005		

## ***TMDL Milestones - Region 3***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Watsonville Slough - Metals</i></u>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	Source Analysis		06/2004		
	TMDL & Allocations		06/2004		
<u><i>Watsonville Slough - Oil and Grease</i></u>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	Source Analysis		06/2003		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Basin Planning	Regional Board Hearing Date		04/2007		
<u><i>Watsonville Slough - Pathogens</i></u>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	Source Analysis		06/2004		
	TMDL & Allocations		06/2004		
<u><i>Watsonville Slough - Pesticides</i></u>					
Development	Problem Statement		06/2003		
	Numeric Targets		06/2003		
	TMDL & Allocations		06/2003		
	TMDL Report		06/2003		
Basin Planning	Regional Board Hearing Date		04/2007		

## ***TMDL Milestones - Region 4***

		Start Date	Original Completion	Revised Completion	Actual Completion
<b><u>Ballona Creek - Coliform</u></b>					
Development	Consent Decree Date		03/2006		
Basin Planning	Regional Board Adoption Date		10/2001	7/1/02	
<b><u>Ballona Creek - Metals</u></b>					
Development	Conceptual Model		06/2002		
	Consent Decree Date		03/2004		
Basin Planning	Regional Board Adoption Date		07/2003		
<b><u>Ballona Creek - Trash</u></b>					
Development	Consent Decree Date		03/2001		
Basin Planning	Regional Board Adoption Date		04/2001	8/1/01	
<b><u>Calleguas Creek - Chloride</u></b>					
Development	Consent Decree Date		03/2001		
Basin Planning	Regional Board Adoption Date			8/1/01	
	State Board Hearing Date			11/1/02	
<b><u>Calleguas Creek - Nutrients</u></b>					
Development	Consent Decree Date		03/2002		
Implementation Planning	Implementation Plan		01/2002		
Basin Planning	Regional Board Hearing Date		01/2002		
<b><u>Calleguas Creek - Salts</u></b>					
Development	TMDL & Allocations		06/2002		
Basin Planning	Regional Board Adoption Date		06/2003		
<b><u>Dominguez Channel - Coliform</u></b>					
Development	Linkage Analysis		02/2002		
	Consent Decree Date		03/2004		
Basin Planning	Regional Board Adoption Date		02/2002	4/1/02	
<b><u>Los Angeles River - Coliform</u></b>					
Basin Planning	Regional Board Adoption Date		07/2001	12/1/01	

## ***TMDL Milestones - Region 4***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Los Angeles River - Metals</i></u>					
Development	Quantitative Model		06/2002		
	Consent Decree Date		03/2004		
Basin Planning	Regional Board Adoption Date		07/2002	6/1/02	
<u><i>Los Angeles River - Nutrients</i></u>					
Development	Consent Decree Date		03/2002		
Basin Planning	Regional Board Adoption Date		07/2001	12/1/01	
<u><i>Los Angeles River - Trash</i></u>					
Development	Consent Decree Date		03/2001		1/1/01
Implementation Planning	Monitoring Plan		06/2002		
Basin Planning	Regional Board Hearing Date				1/1/01
<u><i>Malibu Creek - Coliform</i></u>					
Development	Consent Decree Date		03/2002		
Basin Planning	Regional Board Adoption Date		06/2001	1/1/02	
<u><i>Malibu Creek - Metals</i></u>					
Development	Linkage Analysis		06/2002		
	TMDL & Allocations		06/2002		
Basin Planning	Regional Board Adoption Date		06/2003		
<u><i>Malibu Creek - Nutrients</i></u>					
Development	Consent Decree Date		03/2002		
Basin Planning	Regional Board Adoption Date		06/2001	1/1/02	
<u><i>Marina del Rey Harbor - Coliform</i></u>					
Development	Quantitative Model		06/2002		
	TMDL & Allocations		06/2002		
	Consent Decree Date		03/2003		
Basin Planning	Regional Board Adoption Date		12/2002		
<u><i>McGarath Beach - Coliform</i></u>					
Development	TMDL & Allocations		06/2002		
	Consent Decree Date		03/2003		
Basin Planning	Regional Board Adoption Date		10/2002		

## ***TMDL Milestones - Region 4***

		Start Date	Original Completion	Revised Completion	Actual Completion
<b><u><i>San Gabriel River - East Fork - Trash</i></u></b>					
Development	Consent Decree Date		03/2000	3/1/01	11/1/00
Basin Planning	Regional Board Hearing Date				10/1/00
<b><u><i>San Gabriel River - Coliform</i></u></b>					
Development	TMDL & Allocations		06/2002		
Basin Planning	Regional Board Adoption Date		05/2003		
<b><u><i>San Gabriel River - Nutrients</i></u></b>					
Development	Linkage Analysis		06/2002		
	TMDL & Allocations		06/2002		
	Consent Decree Date		03/2003		
Basin Planning	Regional Board Adoption Date		11/2002		
<b><u><i>Santa Clara River - Chloride</i></u></b>					
Development	Consent Decree Date		03/2002		
<b><u><i>Santa Clara River - Nutrients</i></u></b>					
Development	Quantitative Model		06/2002		
	TMDL & Allocations		06/2002		
	Consent Decree Date		03/2003		
Basin Planning	Regional Board Adoption Date		01/2003		
<b><u><i>Santa Monica Bay Beaches - Coliform</i></u></b>					
Development	Consent Decree Date		03/2002		
Basin Planning	Regional Board Adoption Date		01/2002		
<b><u><i>Santa Monica Bay Nearshore &amp; Offshore Zone - Metals</i></u></b>					
Development	Monitored Assessment		06/2002		
Basin Planning	Regional Board Adoption Date		09/2003		
<b><u><i>Ventura River - Algae</i></u></b>					
Development	Conceptual Model		06/2002		
Basin Planning	Regional Board Adoption Date		10/2003		

## ***TMDL Milestones - Region 5***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>303(d) List</i></u>					
Management	Listing Documents		01/2002		
<u><i>All</i></u>					
Development			06/2002		
<u><i>Cache Creek - Mercury</i></u>					
Development			03/2001		
	Problem Statement		12/2000	3/1/01	
	Numeric Targets		06/2002		
	Source Analysis		06/2002		
	TMDL & Allocations		12/2002		
	TMDL Report		06/2003		
Implementation Planning	Implementation Plan		06/2001		
<u><i>Clear Lake - Mercury</i></u>					
Development	Numeric Targets		12/2000	2/1/01	
	Source Analysis		06/2002	3/1/01	
	TMDL Report		11/2001		
Implementation Planning	Implementation Plan		06/2001		
Basin Planning	Prepare Amendment		06/2002		
<u><i>Delta - Diazinon and Chlproprifos</i></u>					
Development			06/2001		
	Problem Statement		12/2000	3/1/01	
	Numeric Targets		06/2001		
	Source Analysis		06/2002		
Implementation Planning	Implementation Plan		06/2002		
<u><i>Delta - Dissolved Oxygen</i></u>					
Development	Problem Statement		06/2001		
	Source Analysis		06/2001		

## ***TMDL Milestones - Region 5***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Delta - Mercury</i></u>					
Development			06/2001		
	Monitored Assessment	6/1/01			
	Problem Statement		12/2000		
	Numeric Targets		08/2002		
	Source Analysis		08/2002		
	TMDL & Allocations		12/2002		
	TMDL Report		06/2003		
<u><i>Harley Gulch - Mercury</i></u>					
Development	Problem Statement		12/2001		
	Numeric Targets		06/2002		
	Source Analysis		06/2002		
	TMDL & Allocations		12/2002		
	TMDL Report		06/2003		
<u><i>Little Grizzly Creek/Dolly Creek - Copper, Zinc</i></u>					
Development	Problem Statement		12/2001		
	Numeric Targets		03/2002		
	Source Analysis		03/2002		
	TMDL & Allocations		08/2002		
	TMDL Report		06/2003		
<u><i>Merced, Tuolumne, and Stanislaus Rivers - Diazinon and Chlorpyrifos</i></u>					
Development	Source Analysis		06/2002		
<u><i>Sacramento and Feather Rivers - Diazinon</i></u>					
Development			06/2001		
	Problem Statement		12/2000	3/1/01	
	Numeric Targets		06/2001		
	Source Analysis		06/2001		
	TMDL Report		06/2002		
Implementation Planning			06/2002		
Basin Planning	Prepare Amendment		06/2002		

## ***TMDL Milestones - Region 5***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Sacramento Area Urban Creeks - Diazinon and Chlorpyrifos</i></u>					
Development	TMDL Report		06/2002		
Implementation Planning	Implementation Plan		06/2002		
Basin Planning	Prepare Amendment		06/2002		
<u><i>Sacramento River - Cadmium, Copper, Zinc</i></u>					
Development	TMDL Report		06/2001		
<u><i>Sacramento River - Mercury</i></u>					
Development	Monitored Assessment		06/2002		
	Problem Statement		12/2002		
	Numeric Targets		03/2003		
	Source Analysis		03/2003		
	TMDL & Allocations		11/2003		
	TMDL Report		06/2005		
<u><i>San Joaquin River - Diazinon and Chlorpyrifos</i></u>					
Development	Monitored Assessment		06/2002		
	Problem Statement		12/2000	3/1/01	
	Numeric Targets		06/2001		
	Source Analysis		12/2002		
	TMDL Report		06/2002		
Implementation Planning	Implementation Plan		06/2002		
<u><i>San Joaquin River - Electrical Conductivity and Boron</i></u>					
Development	TMDL & Allocations		10/2001		
	TMDL Report		06/2001	8/1/01	
Implementation Planning	Implementation Plan		12/2001		
Basin Planning	Prepare Amendment		06/2002		
<u><i>San Joaquin River - Organochlorine Pesticides</i></u>					
Development	TMDL Report		06/2002		
<u><i>San Joaquin River - Selenium</i></u>					
Development	TMDL Report		06/2001		
Implementation Planning	Implementation Plan		06/2001		

## ***TMDL Milestones - Region 5***

		Original Completion	Revised Completion	Actual Completion
<u><i>Sulfur Creek - Mercury</i></u>				
Development	Problem Statement	12/2002		
	Numeric Targets	06/2002		
	Source Analysis	06/2002		
	TMDL & Allocations	11/2002		
	TMDL Report	06/2003		

## ***TMDL Milestones - Region 6***

			Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Aspen Creek - Metals</i></u>						
Development			7/1/08			
<u><i>Bear Creek - Sedimentation/Siltation</i></u>						
Development			7/1/02			
<u><i>Haiwee Reservoir - Copper</i></u>						
Development	TMDL & Allocations		10/1/00	06/2001		
Implementation Planning	Implementation Plan		7/1/01	06/2002		

## ***TMDL Milestones - Region 7***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>303(d) List</i></u>					
Development	Impairment Assessment	7/1/01	01/2002		
<u><i>Alamo River - Pesticides</i></u>					
Development	Problem Statement	7/1/01	04/2002		
<u><i>Imperial Valley Drains - Sediment</i></u>					
Development	Impairment Assessment	7/1/01	12/2001		
<u><i>New River - Sediment</i></u>					
Basin Planning	Peer Review	7/1/01	09/2001		
	CEQA Analysis	7/1/11	09/2001		
	Regional Board Hearing Date	9/1/01	12/2001		
<u><i>Program Management</i></u>					
Management	Work Plans	4/1/01	05/2001		
	Semi-annual Report	1/1/02	02/2002		
	Annual Report	5/1/02	06/2002		
<u><i>Salton Sea (transboundary watershed) - Nutrients</i></u>					
Development	Problem Statement	7/1/00	11/2001	4/1/01	4/1/01
	Source Analysis	7/1/01	06/2002		
Implementation Planning	NPS Management Measures	7/1/01	04/2002		

## ***TMDL Milestones - Region 8***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Big Bear Lake - metals</i></u>					
Development	Monitored Assessment	7/1/00	06/2002		
<u><i>Big Bear Lake - nutrients</i></u>					
Development	Conceptual Model		01/2003		
	Monitored Assessment	6/1/00	06/2003		
	TMDL & Allocations	6/1/00	06/2003		
Implementation Planning	Implementation Plan	1/1/03	01/2004		
Basin Planning	Peer Review	5/1/03	06/2003		
<u><i>Big Bear Lake - sediment</i></u>					
Development	Monitored Assessment	1/1/01	06/2003		
	TMDL & Allocations	1/1/01	06/2003		
<u><i>Canyon Lake - nutrients</i></u>					
Development	Conceptual Model	7/1/01	06/2002		
	Monitored Assessment	6/1/00	06/2002		
	Problem Statement	2/1/01	07/2001		
Implementation Planning	Implementation Plan	4/1/02	10/2002		
Basin Planning	Peer Review		09/2002		
<u><i>Canyon Lake - pathogens</i></u>					
Development	Monitored Assessment		06/2002		
	Problem Statement		03/2002		
Implementation Planning	Implementation Plan	4/1/02	10/2002		
Basin Planning	Peer Review		09/2002		
	Regional Board Adoption Date		12/2002		
	State Board Action Date		06/2003		
	Office of Administrative Law Action		12/2003		
<u><i>Huntington Harbour/Anaheim Bay - metals</i></u>					
Development	Impairment Assessment		06/2001		
<u><i>Lake Elsinore - sediment</i></u>					
Development	Problem Statement		07/2001		
<u><i>Lake Elsinore - toxicity</i></u>					
Development	Monitored Assessment		06/2002		

## ***TMDL Milestones - Region 8***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Newport Bay - toxicity</i></u>					
Development	TMDL & Allocations		12/2001		
Implementation Planning	Implementation Plan		06/2002		
<u><i>Prado Area streams - nutrients</i></u>					
Development	Monitored Assessment		04/2003		
<u><i>Prado Area streams - pathogens</i></u>					
Development	Monitored Assessment		04/2003		
<u><i>WOA/303d listing process - all</i></u>					
Development	Updated 303d list	2/1/01	12/2001		

## ***TMDL Milestones - Region 9***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>303d List work - Not applicable</i></u>					
Management	Annual Report	6/1/01	04/2002		
<u><i>Chollas Creek - Diazinon</i></u>					
Ignore this entry	Work Plans	6/1/01	07/2002		
Development	Problem Statement	2/1/09			
	TMDL & Allocations		04/2000		
Implementation Planning	Implementation Plan	5/1/00	04/2001	8/1/01	
	Monitoring Plan	5/1/00	04/2001	8/1/01	
Basin Planning	Prepare Amendment	11/1/00	07/2002	7/1/02	
Stakeholder participation	Stakeholder participation	5/1/00	07/2001	7/1/02	7/1/02
<u><i>Chollas Creek - Metals</i></u>					
Development	Problem Statement	1/1/00	03/2000		3/1/00
	Numeric Targets	2/1/00	03/2000		3/1/00
	Source Analysis	3/1/00	09/2000	5/1/01	
	TMDL & Allocations	4/1/00	04/2001	10/1/01	
Implementation Planning	Implementation Plan	9/1/00	08/2001	1/1/02	
	Monitoring Plan	9/1/00	08/2001	1/1/02	
Basin Planning	Prepare Amendment	3/1/01	01/2002	12/1/02	
Stakeholder participation	Stakeholder participation	1/1/00	01/2002	12/1/02	
<u><i>Mission Bay - Coliform</i></u>					
Development	Problem Statement	3/1/01	06/2001	11/1/01	
	Numeric Targets	5/1/01	07/2001	12/1/01	
	Source Analysis	7/1/01	06/2002	6/1/03	
	TMDL & Allocations	12/1/01	06/2002	6/1/03	
Implementation Planning	Implementation Plan	4/1/02	01/2003	2/1/04	
	Monitoring Plan	4/1/02	01/2003	2/1/04	
Basin Planning	Prepare Amendment	12/1/02	02/2004	4/1/05	
Management	Work Plans	7/1/01	06/2002		
Stakeholder participation	Stakeholder participation	3/1/01	02/2004	4/1/05	

## ***TMDL Milestones - Region 9***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>Rainbow Creek - Nutrients</i></u>					
Development	Problem Statement		05/2001	5/1/01	
	Numeric Targets		05/2001	7/1/01	
	Source Analysis		05/2001	7/1/01	
	TMDL & Allocations		05/2001	7/1/01	
Implementation Planning	Implementation Plan	5/1/00	12/2001	8/1/01	
	Monitoring Plan	5/1/00	07/2001	8/1/01	
Basin Planning	Prepare Amendment	11/1/00	07/2001	7/1/02	
Management	Work Plans	6/1/01	07/2002		
Stakeholder participation	Stakeholder participation	5/1/00	07/2001	7/1/02	
<u><i>San Diego Bay - Downtown Piers - Toxicity, Benthic Communities</i></u>					
Development	Not Applicable	7/1/01	06/2002		
	Problem Statement	12/1/01	02/2002		
	Numeric Targets	1/1/02	02/2002		
	Source Analysis	7/1/01	08/2004		
	TMDL & Allocations	3/1/04	08/2004		
Implementation Planning	Implementation Plan	8/1/04	11/2004		
	Monitoring Plan	8/1/04	02/2005		
Basin Planning	Prepare Amendment	2/1/05	12/2005		
Stakeholder participation	Stakeholder participation	12/1/01	12/2005		
<u><i>San Diego Bay - Near Chollas Creek - Toxicity, Benthic Communities</i></u>					
Development	Problem Statement	9/1/00	11/2000	9/1/01	
	Numeric Targets	10/1/00	11/2000	9/1/01	
	Source Analysis	6/1/03	12/2003		
	TMDL & Allocations	7/1/03	12/2003		
Implementation Planning	Implementation Plan	12/1/03	03/2004		
Basin Planning	Prepare Amendment	5/1/04	03/2005		
Implementation	Monitoring Status Report	12/1/03	05/2004		
Management	Work Plans	6/1/01	07/2002	7/1/03	
Stakeholder participation	Stakeholder participation	9/1/00	03/2005		

## ***TMDL Milestones - Region 9***

		Start Date	Original Completion	Revised Completion	Actual Completion
<u><i>San Diego Bay - San Diego Naval Station - Toxicity, Benthic Communities</i></u>					
Development	Problem Statement	12/1/01	02/2002		
	Numeric Targets	1/1/02	02/2002		
	Source Analysis	2/1/02	08/2004		
	TMDL & Allocations	3/1/04	08/2004		
Implementation Planning	Implementation Plan	8/1/04	11/2004		
	Monitoring Plan	8/1/04	02/2005		
Basin Planning	Prepare Amendment	2/1/05	12/2005		
Stakeholder participation	Stakeholder participation	12/1/01	12/2005		
<u><i>San Diego Bay - Seventh Street Channel - Toxicity, Benthic Communities</i></u>					
Development	Problem Statement	9/1/00	11/2000	9/1/01	
	Numeric Targets	10/1/00	11/2000	9/1/01	
	Source Analysis	6/1/03	12/2003		
	TMDL & Allocations	7/1/03	12/2003		
Implementation Planning	Implementation Plan	12/1/03	03/2004		
	Monitoring Plan	12/1/03	05/2004		
Basin Planning	Prepare Amendment	5/1/04	03/2005		
Management	Work Plans	6/1/01	07/2002	7/1/03	
Stakeholder participation	Stakeholder participation	9/1/00	03/2005		
<u><i>San Diego Bay - Shelter Island Yacht Basin - Dissolved Copper</i></u>					
Development	Problem Statement	1/1/00	03/2000	3/1/00	3/1/00
	Numeric Targets	2/1/00	03/2000	3/1/00	3/1/00
	Source Analysis	3/1/00	05/2000	5/1/01	5/1/01
	TMDL & Allocations	4/1/00	07/2001	8/1/01	
Implementation Planning	Implementation Plan	4/1/01	08/2001	11/1/01	
Basin Planning	Prepare Amendment	10/1/01	07/2002	10/1/02	
Implementation	Monitoring Status Report	4/1/01	10/2001	11/1/01	
Stakeholder participation	Stakeholder participation	1/1/00	07/2002	10/1/02	

## Agenda Item 13

Measures being taken to expedite the  
TMDL process

## **Measures Implemented by the Division of Water Quality to Expedite TMDLs During FY 00-01**

The following activities were implemented during FY 00-01 with the specific intent of expediting the development of Total Maximum Daily Loads (TMDLs). While the list may appear brief, it should be noted that each activity required considerable staff time to complete. State and Regional Board staff and management will continue to pursue additional ways in which TMDL development might be facilitated.

**Tracking System:** This is an Access data base that includes milestones, products, and funding for all TMDLs that are being addressed by the Regional Boards. Information can be entered for multiple fiscal years, and date fields for deliverables allow for tracking anticipated completion of various TMDL products. By standardizing the format in which TMDL information is presented, this will facilitate the development of annual workplans and also provide timely information about TMDL progress.

**Contracting Authority:** The State Board approved in February 2001 a resolution that allows contracts for TMDL work to exceed the usual spending authority of \$200,000 without first procuring Board approval. The resolution also allows funding for TMDL contracts to be available for five years instead of two years. Adopting this resolution will streamline the contracting process for TMDL work and thereby enhance the ability of the RWQCBs to maintain TMDL development schedules. It will further enhance TMDL work by allowing for multiple-year contracts and combination of contracts for related TMDL projects.

**Master Contract:** Division staff has begun work on developing a master contract to facilitate Regional Board staff in contracting for TMDL work. Various TMDL tasks will essentially be "pre-approved" as specified in the master contract, which will greatly reduce the administrative work typically required in getting contracts written and approved.

**Authority to Make Corrections to Basin Plan Amendments:** Another measure that should help expedite TMDL approvals is a recent proposal by the Office of Administrative Law that will give State Board Executive Officer the authority to make minor, non-substantive corrections to the language of Basin Plan amendments. Formerly, minor corrections needed to be sent back to the Regional Board for approval, a process that involved repeating the public process and requiring a second Regional Board hearing.

**TMDL Training:** Several classes will be offered during FY 01-02 to assist State and Regional Board staff in developing TMDLs. There will be at least three sessions offered in Geographic Information Systems conducted by the State Board training unit this summer and fall. The State Board will also offer in September a several-day training course in the BASINS watershed model for interested Regional Board staff. A class in the WARMTH model will also be offered this year. General TMDL training (Watersheds 101) is also offered annually through the State Board. These classes will further enhance staff expertise and provide new tools for developing TMDLs.

**Basin Planning Training:** An extensive training class in the process of developing Basin Plan amendments was presented this year and will be offered again in FY 01-02. Both State and Regional Board staff attended this training. Since all TMDLs will need to be incorporated into Basin Plans, this class was (and will be) invaluable in streamlining the Basin Plan amendment process, which is generally a complicated and time-consuming effort.

## Agenda Item 14

Update: Development of the 2002 Section  
303(d) list and development of  
Listing/Delisting Policy

## **State Board 2002 303(d) Listing Process Current Status Report for AB 982 PAG – July 5, 2001**

**Previous Listings:** The listing of waters pursuant to federal Clean Water Act (CWA) Section 303(d) has evolved over time. Initially, in 1976, less than 20 water bodies were identified in the CWA Section 305(b) report as “Water Quality Limited Segments.” The “Water Quality Limited Segments” list remained virtually the same until 1988, when it increased to 75 water bodies. In the 1990 305(b) report, the list was identified for the first time as the “Section 303(d) List.” The 1990 303(d) list included approximately 250 water bodies. Since 1990, the 303(d) list has increased with each biennial listing process, and in 1998, 509 water bodies were listed with 1,471 water body/pollutant combinations. Prior to 1998, the listing process varied among RWQCBs. Some RWQCBs formally adopted the 303(d) list for their regions, while others did not. In 1998, staff at all nine RWQCBs presented their 303(d) list to their respective boards for official approval. The SWRCB also formally approved the 1998 statewide 303(d) list before submittal to USEPA. Federal law requires that the list be revised every two years, however a federal rule suspended the 2000 submittal. The next revision of the list is due in April of 2002.

**2002 303(d) List and TMDL Priority Schedule:** For the 2002 303(d) list, staff at the nine RWQCBs solicited information from the public, by May 15, 2001. Now they will evaluate this information and prepare a 303(d) list for their regions. It is up to each RWQCB if the staff recommendations will be presented to their respective Boards for approval before submitting the information to the SWRCB. The regional lists will be submitted to the SWRCB for review and merging into the statewide 303(d) list. Regional submittals to the SWRCB are due in October 2001. The statewide list will include pollutants and stressors, probable sources and TMDL priorities for completion. The list will be prepared using information submitted by the RWQCBs and data from the SWRCB’s Georeferenced Waterbody System (GeoWBS) database. This database is a catalogue of the state’s major water bodies and contains information about water body size, specific pollutants, sources of pollutants, and affected uses. It identifies the general condition of the uses supported by each water body. The RWQCBs provide all the information in this database. SWRCB staff will prepare a report for public review and comment in December 2001. The SWRCB will conduct a public workshop on the statewide list, followed by a public meeting for approval of the list in February or March 2002. The SWRCB will submit the statewide list to USEPA for approval in April 2002. For all updates, USEPA reviews the state’s list and approves or disapproves it. If the list is disapproved, USEPA proposes a modified list with a 30-day public comment period. The USEPA’s final list becomes the state’s list until the next list is completed. This will be in two to four years.

**State Policy on Listing:** There is no statewide policy guiding the listing process. Public input received during the current listing process will be used as the initial public input on the development of a statewide policy. The policy will be adopted in time for the next 303(d) listing.

## Agenda Item 16

# Surface Water Ambient Monitoring Program Update

**Staff Report by the  
Division of Water Quality**

**JUNE 2001: STATUS OF THE  
SURFACE WATER AMBIENT MONITORING PROGRAM**

The State Water Resources Control Board (SWRCB) has begun implementation of the proposal to develop a comprehensive surface water quality monitoring program. This staff report presents the SWRCB and Regional Water Quality Control Boards (RWQCBs) activities to implement the proposed program.

**Program Overview**

SWAMP was proposed as a new comprehensive program which will (1) integrate the existing water quality monitoring of the SWRCB and RWQCBs and (2) coordinate with monitoring programs of other agencies, dischargers, and citizens groups. To ensure that the Program is coordinated and integrated, the monitoring efforts shall be overseen centrally by the SWRCB. The RWQCBs will establish monitoring priorities for the water bodies within their jurisdictions, in coordination with the SWRCB. This monitoring will be done in accordance with protocols and methodologies laid out in the program.

**Major Activities of SWAMP in FY 2000-01**

***Program Proposal Submitted to the Legislature***

The SWRCB submitted its proposal for a comprehensive surface water quality monitoring program to the Legislature in March 2001.

***Budget***

In Fiscal Year 2000-01 the Governor's budget included the SWRCB's Water Quality Initiative to support and expand the implementation of ambient monitoring. The SWRCB's budget was augmented by 10.5 PYs and \$3.6 million. The Contract and PY allocations are presented in Table 1.

Table 1: FY 2000-01 Contract and Personal Services Budget Allocations.

Region	Personal Services	Contract Allocations
Division of Water Quality (DWQ)	\$59,477	\$180,000
North Coast Region (1)	\$70,293	\$420,000
San Francisco Bay Region (2)	\$43,257	\$310,000
Central Coast Region (3)	\$43,257	\$310,000
Los Angeles Region (4)	\$59,479	\$360,000
Central Valley Region (5)	\$113,551	\$800,000

Region	Personal Services	Contract Allocations
Lahontan Region (6)	\$59,479	\$360,000
Colorado River Region (7)	\$43,257	\$310,000
Santa Ana Region (8)	\$37,850	\$275,000
San Diego Region (9)	\$37,889	\$275,000
TOTAL	\$567,789	\$3,600,000

### ***Site-specific Monitoring Workplans***

The SWRCB and RWQCBs are beginning to implement SWAMP by first focusing on site-specific monitoring to better characterize problem and clean locations. Each of the RWQCBs have initiated the development of work plans to implement monitoring in each Region. The guidance to the Regions for developing the workplans is attached.

### ***Reference Conditions Study***

One of the goals of SWAMP is to identify clean locations throughout the State. RWQCB and SWRCB staff are working with the CDFG, University of California scientists, and the U.S. Environmental Protection Agency to develop an approach for defining stream reference conditions in California. The draft process for identifying stream reference conditions includes four steps as follows:

1. Define region of interest and types of streams to be evaluated.
2. Develop list of land use disturbances, pollution sources, dams/reservoirs, etc. for subject region and a system for rating impact.
3. Rank candidate sites within categories/classes to develop a list of least disturbed reference locations.
4. Ground-truth selected reference sites for local-level conformity to high quality habitat.

### ***Monitoring Contracts***

Once developed, the workplans will be implemented through contracts and interagency agreement with a number of organizations. The majority of the work will be performed using master contracts with the California Department of Fish and Game (CDFG) and the U.S. Geological Survey (USGS). Many RWQCBs are also using a variety of other contractors to implement SWAMP. The allocation of contract funding for FY 2000-01 is presented in Table 2.

Table 2: Contracts and Interagency Agreements developed in FY 2000-01 to Implement SWAMP.

Region	Contractor	Funding
1	CDFG (Master Contract)	\$130,325
	Sequoia Analytical	\$39,961
	North Coast Lab	\$55,860
	Basic Laboratory	\$26,310
	USGS	\$167,544
2	CDFG (Master Contract)	\$280,000
	CCF Student	\$30,000
3	CDFG (Master Contract)	\$220,000
	Colleges of CA	\$20,000
	BC Laboratories	\$70,000
4	CDFG (Master Contract)	\$360,000
5	UC Davis-ATL	\$179,200
	Plumas Corporation	\$228,200
	North Cal-Neva RCD	\$21,800
	Twining Laboratories	\$96,235
	CSUS Foundation	\$65,000
	CLS Laboratory	\$66,450
	CLS Laboratory	\$4,320
	Sierra Foothill Lab	\$41,790
	CDFG (Master Contract)	\$97,005
6	USGS	\$150,000
	UC Santa Barbara	\$125,000
	NEL Lab	\$28,000
	UC Santa Barbara	\$27,000
	CDFG (Master Contract)	\$10,000
	Desert Research	\$20,000
7	CDFG (Master Contract)	\$310,000
8	SCCWRP/private	\$267,400
	CDFG (Master Contract)	\$7,600
9	CDFG (Master Contract)	\$275,000
DWQ	UC Davis	\$73,007
	Humboldt State	\$10,000
	CDFG (Master Contract)	\$20,000
	Tetra Tech	\$76,993
TOTAL:		\$3,600,000

## **Quality Assurance**

SWAMP will be developed and implemented with the objective of collecting high quality monitoring data that could be of the most use to the SWRCB and RWQCB programs. The proposal (SWRCB, 2001) describes the general quality assurance approach, the need for a quality assurance project plan (QAPP), and describes the periodic scientific review of the monitoring efforts.

SWAMP has initiated the development of a Statewide QAPP. The Department of Fish and Game is leading this effort. The QAPP will cover all aspects of monitoring conducted by SWAMP.

To coordinate the approaches used by the various participating laboratories, SWAMP will sponsor a series of scientific workshops on quality assurance. The topics and tentative dates for the meetings are:

1. Water and sediment collection: July 23-24, 2001 in Moss Landing.
2. Chemical measurement: August 28-29, 2001 at the Nimbus Fish Hatchery, Sacramento.
3. Bioassessment/toxicity: To be announced.

SWAMP is also organizing a scientific panel to review study design, approaches, indicators, and other relevant topics. The panel will have experts in the fields of monitoring program management, fish habitat, invertebrates, sediment, eutrophication, organic chemistry, metals chemistry, quality assurance, pathogens, toxicology, and statistics. The panel has been tentatively named the Grand Assortment of Scientists (GAS).

## **Data Management**

Data management, evaluation, and reporting will be high priorities of SWAMP. SWAMP has begun the process of placing or linking all data that is collected by SWAMP into a centralized location. The goal is that any data that are collected as part of the Program will be made available to all stakeholders centrally along with accompanying metadata.

SWAMP sponsored a meeting on June 15, 2001 at the Moss Landing Marine Laboratories to initiate this process. The participants in the meeting were staff from SWRCB, Southern California Coastal Water Research Project, San Francisco Estuary Institute, the National Oceanic and Atmospheric Administration, the Morro Bay Foundation, and the Moss Landing Marine Laboratories. The participants discussed concepts for most efficient way to manage all SWAMP data. The results of the meeting were:

1. SWAMP should establish a data management approach that allow data to flow from scientists (the various labs that provide data) to SWAMP and SWIM through a number of Scientific Nodes. These nodes are laboratories or organizations capable of reviewing the quality of the data and performing initial (and final) data analysis.
2. Assumptions of the Approach/Concept:
  - A. Data storage and data analysis tools are distinct and linked.
  - B. All SWAMP data goes to and through a node.

- C. Common data standards are needed.
- D. Data resides “everywhere”.
- E. The technology to set up this approach exists.
- F. We have the skills to implement this approach.
- G. Security of the data is an issue; data will not be 100% safe.
- H. Copy of official data resides at SWAMP.
- I. Initial data processing will be carried out at the nodes.
- J. Data storage will be independent of software used.

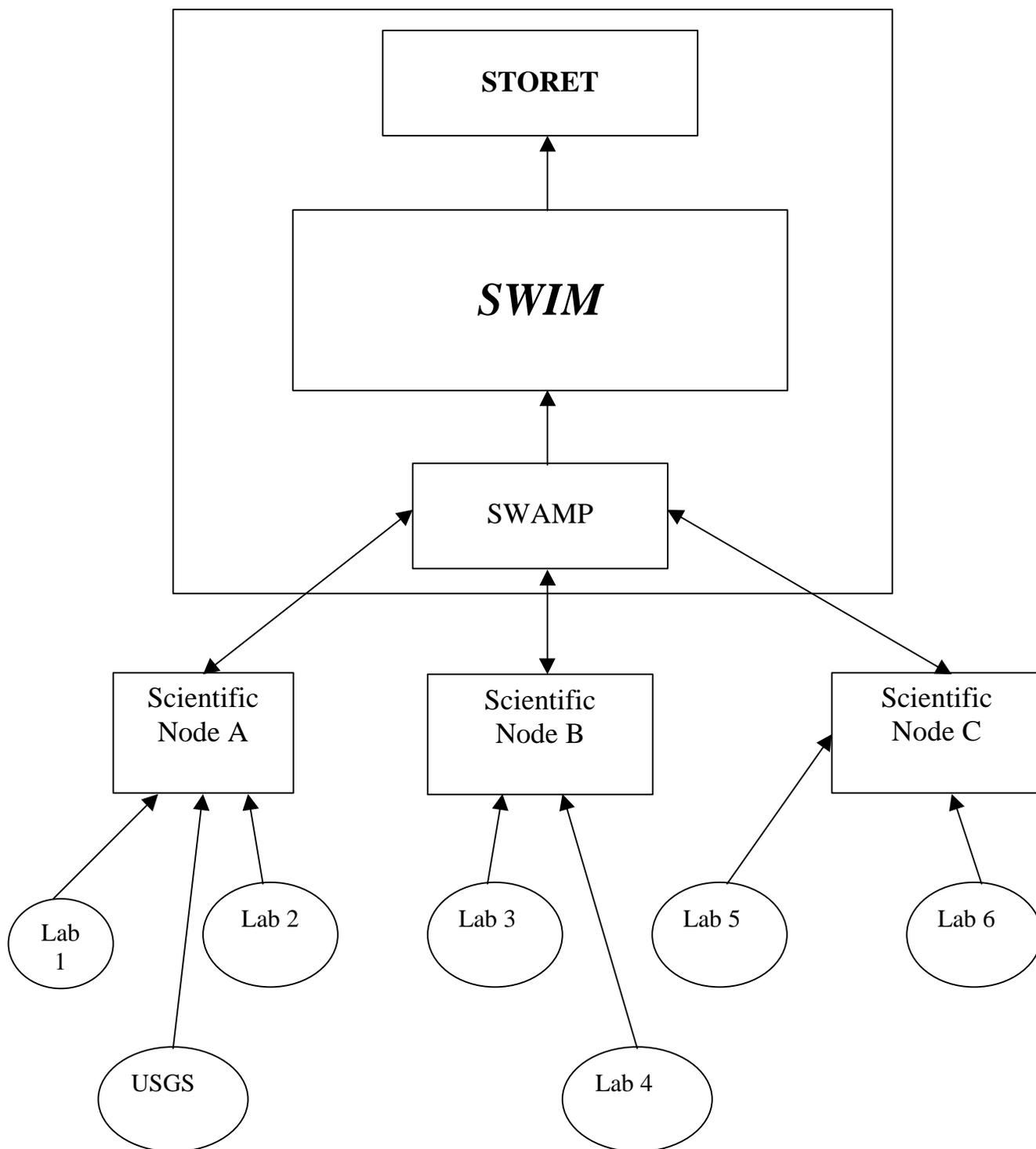
3. Next Steps:

- A. Discuss the approach/concept with SWRCB and RWQCB staff.
- B. Convene data standards committee, develop data standards, and begin implementation.

4. Flow Diagram:

The following diagram (Figure 1) was developed to represent the flow of data among SWAMP participants. Potential/possible scientific nodes are MLML, SCCWRP, and SFEI. Other nodes could/should be added as needed.

Figure 1: The SWAMP data management concept/approach.



# Surface Water Ambient Monitoring Program

## *Guidance for Site-Specific Monitoring Workplans*

### **1. Introduction**

Fiscal Year (FY) 2001-02 will mark the first year of the coordinated implementation of the Surface Water Ambient Monitoring Program (SWAMP). A description of the site-specific monitoring efforts that will be implemented through SWAMP is presented in Section VI of the report to the Legislature titled "Proposal for a comprehensive ambient surface water quality monitoring program."

The overall goal of this portion of SWAMP is to develop site-specific information on sites or water bodies that are (1) known or suspected to have water quality problems and (2) known or suspected to be clean. It is intended that this portion of SWAMP will be targeted at specific locations in each region. This portion of SWAMP is focused on collecting information from sites in water bodies of the State that could be potentially listed or delisted under Clean Water Act Section 303(d). The RWQCBs are allowed significant flexibility to select the specific locations to be monitored. The RWQCBs at their discretion may perform monitoring at clean sites to determine baseline conditions (for assessments related to antidegradation requirements) or if this information is needed to place problem sites into perspective with cleaner sites in the Region.

In order to coordinate existing monitoring efforts and to ensure accountability of the funding and work to be performed, each RWQCB will develop a workplan to implement SWAMP site-specific monitoring. The workplan will ultimately describe all the site-specific monitoring planned over the next five years in each Region. Each Regional site-specific workplan will be developed in three phases: (1) Comprehensive listing of the sites or water bodies that are potential reference sites or with suspected problems, (2) specific activities planned for FY 2001-02, and (3) planning for subsequent years. This guidance focuses on Item 1 and 2. It does not currently address Item 3 – planning for years after FY 2001-02.

This document serves as instructions for the development of the Site-Specific Monitoring Workplans for SWAMP. Additional workplans (and guidance) will be developed to implement the Regional Monitoring portion of SWAMP.

### **2. Identify Problem or Clean Sites to Monitor**

Identify site-specific problem(s), potential problem(s), or clean water locations to be monitored. Prepare a comprehensive list of the sites or waterbodies in priority to be monitored in the Region. This list should be in sufficient detail and scope so it may be included in the Regionwide Section of the RWQCB's Watershed Management Initiative Chapter.

### **3. Objectives**

For each site or group of sites that will be monitored in a similar manner, select monitoring objectives based on the objective presented in the Legislative Report and on applicable or impacted beneficial uses of the water bodies selected. For the purposes of this analysis, beneficial uses are those uses that are listed in the RWQCB's basin plan, or potential beneficial uses for the water body that are included in the scope of SWAMP.

List the specific objectives associated with the beneficial use(s) of interest that are applicable in the Region. Modify any of the objectives listed if Region-specific conditions dictate and document any deviations or the reason to make the objectives more specific to the particular circumstances in your Region.

#### **3.1. General study design**

##### **3.1.1. Overview of general approach**

RWQCBs staff shall select sites using investigator pre-selection (i.e., point estimates) or a probability-based approach. The approach depends on the RWQCB's needs. If a stratified random sampling approach is used, ensure an adequate number of samples are selected to represent the stratum with adequate precision (please refer to Section V of the Legislative Report).

The RWQCBs may select monitoring sites in water bodies considered to be clean (unpolluted or unimpacted). These sites may be needed to assess baseline conditions or, if the sites are needed as reference sites, to place other monitoring efforts into perspective, or to make assessments related to antidegradation requirements.

In developing the design of the site-specific monitoring efforts, the RWQCBs will consider the existing information or model predictions for the following characteristics:

- Seasonal variation in the water body or watershed including precipitation information;
- Spatial variation in the watershed (the range of physical characteristics in the watershed) including, but not limited to, land use patterns, topography, and soil characteristics;
- The release of water to support groundwater recharge and surface water diversions;
- Sample representativeness under different flow conditions; and
- Variation in the magnitude, duration, and frequency of the suspected water quality problem or unpolluted baseline conditions.

### **3.1.2. Water Quality Indicators**

Provide a list of Water Quality Indicators that you intend to employ at the sites, and as necessary to meet your goals and objectives (please see the Legislative Report which contains somewhat detailed information on the selection of water quality monitoring indicators for the use in meeting stated objectives; the list contained in the Legislative Report is not all inclusive, but contains most of the major indicators commonly employed...feel free to add to it if the proposed indicator meets the acceptability criteria listed).

## **4. Specific Activities Planned For FY 2001-02: Specific technical approach and scope of work to be performed**

For FY 2001-02, the RWQCBs shall present the work that shall be performed. This work shall be based on the funding that is available to each RWQCB. If funds from other programs are available to meet SWAMP goals that work should be described.

### **4.1. List of Water Bodies to be sampled in FY 2001-02**

List each site or water body to be sampled during with FY 2001-02 funding.

### **4.2. Review of available information**

The RWQCB must compile all readily available information including data reports as part of compliance monitoring programs, State monitoring efforts, other agency monitoring, citizen monitoring efforts, or research efforts. Depending on the water body, the RWQCBs and SWRCB will include information produced by the Southern California Bight Projects; the San Francisco Regional Monitoring Program; the USEPA Environmental Monitoring and Assessment Program (EMAP) efforts in the State's enclosed bays, estuaries, coastal streams, and rivers; U.S. Forest Service efforts; NOAA's Status and Trends Program; any information produced as a result of the Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management; and other federal, State, or local programs that would augment the State's monitoring efforts.

Present an overview of existing information. Regional Boards should develop a document that describes the existing information available for the various water bodies listed and the hydrologic units. Region 1 has begun this activity and could be used as an example. This document should describe existing information and list any other known monitoring programs that are studying the waterbody now or that provided monitoring information in the past.

### **4.3. Specific sampling design/sample collection**

Provide information on numbers of each media type (sediment, water, tissues, etc.) to be collected; volume of samples to be collected (in order to accomplish the analytical work to be performed, as well as provided for archives if applicable); locations of samples to be collected (and any location specific instructions necessary, such as specific depths or specific portions of a sample etc.); frequency of sample collections (specific scheduling requirements should be addressed below) including regular intervals (such as monthly, weekly, annually, etc.); seasonal collections, one-time collections, special

event collections, random surveys, etc. If replication is to be employed, describe specifics of replicate sampling (distance from replicate to replicate in the field and any other considerations). If field controls or reference site are to be employed, provide any details possible regarding how these sites are to be chosen. You should also provide any general sample collection information that you deem necessary to document. A few examples of some general statements for example collection that you may wish to consider follow:

“The field crew will collect the samples at sites where the latitude and longitude (and GPS coordinates) was previously recorded during past field work at these stations. If a new stations is being collected, the latitude and longitude, as well as GPS coordinates and cross-referenced photographs, shall be provided for the site for future reference. If there is confusion about locating a site, it shall be resolved in consultation with RWQCB staff member present in the field or via phone contact. Sufficient volume of sediment or tissue or water shall be collected in order to perform the analyses to be conducted at each station, as well as to allow for archiving of samples for future analysis, as shown on the attached “Services to be performed at each station/cost” table. Sample collection and subsequent processing and testing will be performed according to the most recent version of the SWAMP QAPP and region-specific QAPP’s/SOP’s.”

#### ***4.4. Laboratory Analysis***

Specific laboratory analytical work to be performed on samples collected at each station within a particular waterbody should be shown on an attached excel spreadsheet table. The spreadsheet should denote what types of samples are being collected at each station (sediment, water, fish tissue, etc.), what types of analyses are to be conducted on the samples collected from each station (conventional water chemistry, sediment chemistry, mussel watch-type bioaccumulation, sediment toxicity—list specific toxicity tests, rapid bioassessment, etc.), and who is responsible for conduct of the analytical services and sample collection services. Detection limits, QA/QC criteria, and any other analytical-specific information should be included in the QAPP, but if there are specific changes or differences, they should be described and justified.

RWQCBs will select indicators based on the beneficial uses of the water body. For example, if a water body is not a source of drinking water, it is not necessary to implement monitoring focused on drinking water uses. RWQCBs may select alternative indicators if they meet the selection criteria.

In all monitoring efforts, the indicators should be selected from the biological response, pollutant, and habitat indicator categories. Further, indicators representing each category should be collected synoptically. For biological resources, it is important that a triad of measurements (biological, pollutant, and habitat) be collected concurrently. If more than one medium is being monitored, all samples should be synoptically collected, to the extent possible. The most sensitive and waterbody-appropriate indicators should be selected for use.

#### ***4.5. Data quality evaluation and data reporting***

QA/QC evaluation reports and verification that data met QA criteria set forth in the QAPP must be provided with hardcopy data report. QA/QC evaluation ranking by each analytical laboratory should ultimately be provided in the database. In addition, data report appendices should include replicate

data for toxicity test, a database description and file structure description. A QA/QC report should also be included in the final data report, containing an evaluation of how the data complied with actual QA/QC parameters. Any special requirements for QA/QC should be described and discussed and reported. Any desired interpretive assessments of data for determining the characteristics of that particular sample location (such as whether or not it is deemed toxic, such as whether or not it exceeds chemical guidelines such as ERMs, ERLs, an index rating for bioassessment, etc.) should be specified in this section also, for inclusion in any data reporting that occurs.

#### ***4.6. Deliverable products***

Provide a list of desired/anticipated deliverable products to be produced in association with this Work Plan. This could include: Quarterly progress reports, quarterly invoices, contracts prepared by you. Task Orders, draft data reports, final data report, cruise reports, QA/QC reports, special study reports, interpretive reports, special issue papers, peer-review journal publications, and other technical publications, and other technical publications/products as you specify.

#### ***4.7. Desired milestone schedule (significant dates for sample collection and reporting)***

Please provide a schedule of milestones, including desired sample collection events, desired Reporting/deliverable product submissions, and any other milestones pertinent.

#### ***4.8. Desired "sample throughput schedule"***

Ideally, any laboratory you work with to provide you data should provide you a "sample throughput schedule" that they will strive to comply with in terms of sample analysis turn-around time, from time of receipt of sample to time of submission of analytical data. The Department of Fish and game staff have examples of some pretty typical turn-around times of large-scale monitoring programs that you could utilize, if you desire.

#### ***4.9. Budget***

This should comprise of two elements: a statement of your maximum authorized "ceiling" of expenses related to this specific Work Plan, and a detailed site-by-site budget spreadsheet that shows that costs associated with services to be conducted at each site (sample collection, lab analyses, as well as any overall cost, such as data reporting and other special costs not associated with a specific site).

### ***5. Working Relationships***

A decision matrix should be included in the workplan to show the relationship of the various organizations and contractors. The following decision matrix describes the general relationships for implementing the regional monitoring portion of SWAMP. If more than one contractor is used, modify the matrix to show relationships of multiple contractors.

Task	Responsible Organization		
	SWRCB	RWQCBs	Contractors
Develop contract(s) for monitoring services.	●	●	●
Identify water bodies or sites of concern and clean sites to be monitored.		●	
Identify site-specific locations with potential beneficial use impacts or unimpacted conditions that will be monitored.		●	
Decide if concern is related to objectives focused on location or trends of impacts.		●	
Select monitoring objective(s) based on potential beneficial use impact(s) or need to identify baseline conditions.		●	
Identify already-completed monitoring and research efforts focused on potential problem, monitoring objective, or clean conditions.		●	●
Make decision on adequacy of available information.		●	●
Prepare site-specific study design based on monitoring objectives, the assessment of	● (Work Plan Review Role)	●	●

Task	Responsible Organization		
	SWRCB	RWQCBs	Contractors
available information, sampling design, and indicators.			
Implement study design. (Collect and analyze samples.)			●
Track study progress. Review quality assurance information and make assessments on data quality. Adapt study as needed.	● (Review Role)	●	●
Report data through SWRCB web site.	●	● (Coordination Role)	●
Prepare written report of data.	●	●	●

**6. Other information and list of attachments**

If you have literature to cite or any other information, please provide as an attachment. Also, a list of any attachments you will have should be presented, if you have any maps, any spreadsheets, etc., they should be referenced.